

Game of the month: **MDK** – Why Shiny's debut beats the hype

over
30
new titles and
add-ons reviewed

PCREVIEW
• Issue 66

PC REVIEW

THE COMPLETE GUIDE TO PC LEISURE

3D REVOLUTION!

Get into the graphics fastlane with 3D accelerator card – the definitive buyer's guide **PAGE 33**

INSIDE CRYO

The making of Atlantis

MMX OVERDRIVE

The latest on Intel's Pentium upgrades

POLLING DAY

Prepare to vote using the Net and CD-ROMs

WHICH GRAPHICS TABLET?

Six of the finest digital sketch pads go on test

PRICES PLUMMET

There has never been a better time to buy a PC!

HOW TO...

●MAKE MULTIMEDIA:

Full version of Medi8or plus a splendid tutorial

●PLAY HEAD TO HEAD

Set up you PC for two-player gaming



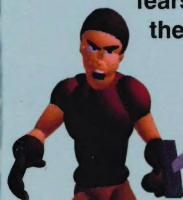
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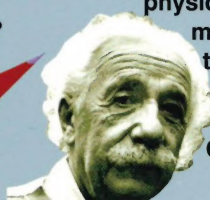
ECSTATICA 2

Is the sequel as fearsome as the original?



SCIENCE 2

Biology, chemistry, physics and more as we test DK's latest science CD-ROM.



HARDWARE

Gremlin's new piracy game previewed.



GRAPHICS SUITE

The latest hot graphics pack.



FLYING CORPS JAMES BOND

Could this WWI flight sim be the best of 1997?



007 finally finds his way on to CD-ROM. Review page 87.



MARCH 1997

"Are you bo

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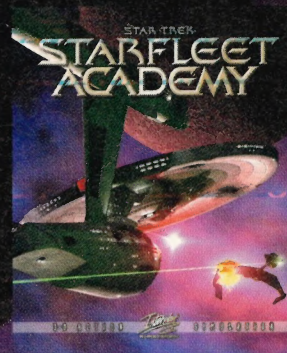
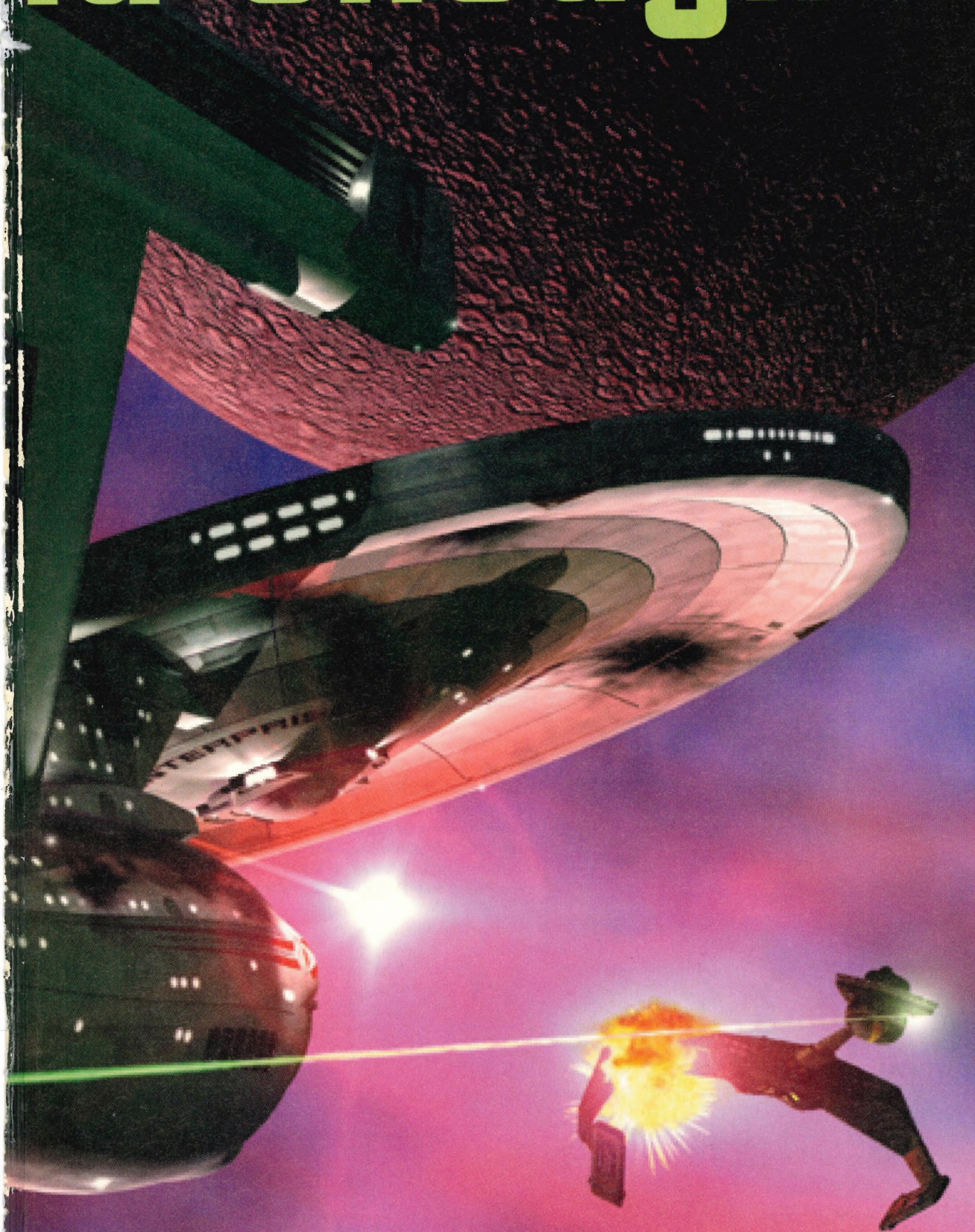
THE WATCHFUL EYE OF **KIRK** (WILLIAM SHATNER), **CHEKOV** (WALTER KOENIG)

AND A SPECIAL APPEARANCE BY GEORGE TAKEI AS **SULU**, COMING TOGETHER IN THE
UNIVERSE'S GREATEST EVER REUNION. THEN, AND ONLY THEN, WILL YOU BE READY TO TAKE

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AVAILABLE

Id enough?"



Interplay

BY GAMERS. FOR GAMERS™



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SPRING '97

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Cover image supplied by Psychosis.



3D REVOLUTION

Get into the graphical fastlane with our definitive feature on 3D graphics cards. We tell you how they work, which one to buy, and we expose the latest games being programmed for these 3D powerhouse cards. If you're thinking seriously about joining the 3D revolution, then race over to page...

33

This month...

10



PC prices falling

Open any newspaper and you'll find adverts for PCs at prices that just a year ago would have been unthinkable. What's going on? Are PCs finally becoming affordable? Or are the post-Christmas sales simply running a little late this year? And where does MMX fit in? Find out, in the first of six pages on the latest news from the world of PCs.

18



Inside Cryo

Like some femme fatale swanning down the Left Bank in 1950s Paris, Cryo Interactive Entertainment's new games for 1997 combine great looks with pretty clever thinking. Led by the stunning 3D adventure *Atlantis*, they'll storm the charts, making their creators rich and causing an economic tidal wave that will be felt all the way to Bonn. Perhaps. Find out what's coming first with PC REVIEW.

72



Surviving and prospering in Diablo

Diablo is taking the role playing world by storm. But if playing the game seems like hurricane weather to you, then make like a whirlwind and spin your way over to page 72 for part one of our *Diablo* tips. We tell you when to fight, when to run away, and when to lock yourself in a dark closet jibbering about magic swords and skeletal armies.

89



Graphics Suite

Our experts review the latest hot graphics pack from Micrografx, which includes *Simply 3D version 2*, *Picture Publisher 7*, *Designer 7*, *Media Manager 2*, *Quick Silver 3* and *Flowcharter 7*. Has there ever been such a comprehensive graphics bundle for under £300?

110



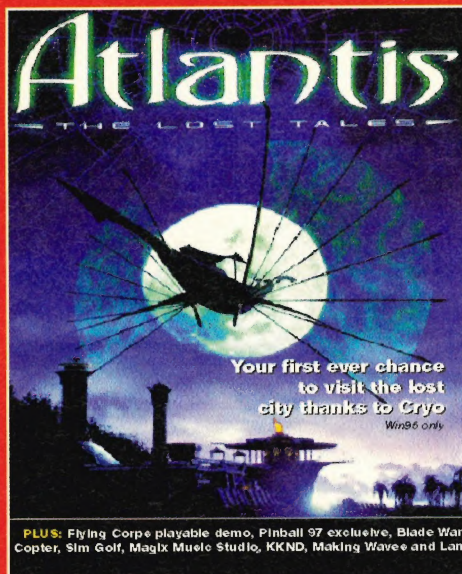
How to make your own multimedia

Not only is there a fully working version of *Medi8or 3.0* *Entrée* on our cover CD, but we're going to show you how to use it. Our incredible tutorial takes you through the steps that go into creating a multimedia pop single. We even give you all the images and sound files to go with it. Part one of three.



MDK

Find out just what makes *MDK* so good in our massive review of this great 3D game by the hotshots at Shiny Entertainment. 41



CD REVIEW
THE BEST IN PC LEISURE

INCREDIBLE HULK
Your chance to control the raging green fella. Exclusive. *Wides, DOS*

MDK
Play the opening section of Shiny's amazing new 3D blaster. *Wides, DOS*

IMSI CLIP ART
100 free images, fonts and sound files. Exclusive.

MEDIA8OR ENTRÉE
The exclusive, fully-working multimedia package. *Wides only*

PLUS: Flying Corps playable demo, Pinball 97 exclusive, Blade Warrior exclusive, Sim Copter, Sim Golf, Magix Music Studio, KKND, Making Waves and Language Labs French.

This month on CD REVIEW...

Player

Firstly, we present an exclusive demo of the amazing *Atlantis*. Then, we follow this wonderment up with exclusive demos of *Blade Warrior*, *Pinball 97* and *The Incredible Hulk*, plus hit games like *Flying Corps*, *MDK* and *Sim Golf*.

The Works

Now you can make your own multimedia projects using *Media8or Entrée 3* from Matchware. We show you how on page 110. Plus, *Magix Music Studio* and more...

Multimedia

With the European single currency looming, there's never been a better time to learn French. This month we bring you *Language Labs French* from those crazy transcontinental software merchants at EuroPress. *Alons-y!*

Pic'n'Mix

Free! 100 pieces of clipmedia courtesy of IMSI's *MasterClips*.

See
page
117

Open up the disc label booklet for a quick reference guide to controls for the games on CD REVIEW. Turn to page 109 for your five-page guide to using the disc, including hints, tips and more.

22



Hardwar

We talk to the producers at Gremlin about their upcoming 3D space trade-'em-up. Piracy in space, music by LFO, Designers' Republic logos and women in shiny rubber body suits – *Hardwar* has it all.

24



Polling Day

Get on top of the election issues using CD-ROMs and the Internet. We tell you where to get the lowdown on the issues, the parties and, inevitably, the personalities. Yes, it's everything you need to know about politics...

28



The Great Debate: The Death of Multimedia

Will 1997 see the death of the CD-ROM disc as we know it? Is the Internet the way forward? Two experts give their views.

46



Flying Corps

Take to the WWI skies as we review *Flying Corps* from Empire Interactive. And once you've found out what we thought of it, you can try it out for yourself because the demo happens to be on CD REVIEW.

52



Ecstatica 2

The sequel to the groundbreaking ellipsoid-filled *Ecstatica*? But can it live up to the darkly atmospheric original? Here's your chance to find out. Warning: this game is definitely not for the faint of heart!

74



Red Alert Cracked

The first instalment in our mission guide to C&C: *Red Alert*. We begin with the allied missions. If you're left baffled, feel read our comprehensive solution to the game.

79



Encyclopedia of Science 2

Can Dorling Kindersley's latest offering survive our acid test? For the results of our experiments read our whopping three page review of this amazing new disc.

87



007 on CD-ROM

Britain's best loved and biggest earning superspy has finally made it on to CD-ROM. Read our shaken not stirred review of *The Ultimate James Bond: An Interactive Dossier*.

100



What Graphics Tablet?

The pen remains infinitely mightier than the mouse when it comes to drawing. We test six graphics tablets and tell you which one's best for the demon artist.

112



How to play head to head games

Ever wanted to set up a head to head game of *Quake* against your friend? We show you exactly how to do it.

EASY FIND

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Tips and solutions to all your PC problems.

WELCOME

China has new leadership, and PC REVIEW has a new Editor. Rather than a mixture of Communist doctrine and state-led capitalist enterprise, however, my endeavour is to bring you the finest PC magazine around each and every month. And instead of laying down the law with tanks and guns, I hope to be as responsive to you, our readers, as possible. So feel free to email me your thoughts and ideas at any time. In the meantime, let me tell you how excited I am about working here on REVIEW. Obviously I'm going to want to change one or two things about the magazine, but at the same time I'll be trying to bring you exactly what you want. Over the next few months, we'll be delving far more into new PC technologies and casting our gaze forwards to the future of leisure computing. At the same time, we'll continue to bring you the reviews, tutorials and excellent coverdisc material you enjoy each month.

Garrick Webster, Editor pcreview@futurenet.co.uk



YOUR COMPLETE GUIDE TO PC LEISURE

Welcome to the UK's most discerning PC magazine. Every month PC Review brings you...



NEWS

We examine how the arrival of MMX has led to price cuts across the PC sector. We also look at the range of MMX add-ons which will prevent your machine from becoming obsolete.

The PC industry is an exciting one, and we'll bring you that buzz every month. As well as the latest on games, multimedia and productivity, we keep you bang up-to-date with the ever-changing PC hardware scene. If a new soundcard or processor is causing excitement, you'll hear it here first. We're not scared of new technology – the kit you'll buy next year is explained today.



Deputy Editor
Owain
Bennallack.



PLAYER

Few games are as exciting to play as *MDK*, the all-action 3D thriller from Interplay. In addition to this instant hit, we bring you *Flying Corps*, *Krush Kill 'n' Destroy* and *Ecstasia 2*, plus a wealth of other new releases.

We offer entertaining, detailed and stimulating games reviews that give you a feel for the games you want to buy. Our reviewers are experienced gamers who write with passion and authority. Also look out for behind-the-scenes reports from the hottest games studios as well as tips and in-depth solutions for hit games.



Games editor,
Mark
Ramshaw.
He knows
his stuff.



MULTIMEDIA

The hot topic is science this month as we kick off with a huge review of the *Encyclopedia of Science 2* from the top British publisher DK. The best British spy ever, meanwhile, appears in the *Ultimate James Bond*.

There's more to entertainment than games, and that's where our multimedia section comes in. We pick out the very best of the latest CD-ROM releases and review them on the basis of how compelling their content is – we're not just impressed by fancy graphics, we're looking for real substance. Our multimedia reviews are the toughest in the business.



Graham
Southorn. Our
multimedia
man.



THE WORKS

Graphics fiends will not only enjoy our review of Graphics Suite from Micrografx, but they'll love our comprehensive review of graphics tablets and our look at two detail enhancing programs for 3D work.

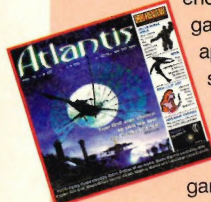
The Works is where you come for the more serious side of computing. But we see no reason why dabbling with creativity software and producing your own graphics or music shouldn't be fun. The Works is also where you'll find our utility software, in-depth buyers guides, hardware projects and answers to our readers' problems.



Technical
editor Mat
Broomfield
presides over
The Works.

CD REVIEW

The finest cover disc you'll find on any PC mag – the slickest, most reliable front end, and the best exclusive game demos, productivity apps and multimedia software. Don't miss our world exclusive demo of *Atlantis*, the incredible-looking new adventure game from Cryo.



The PC REVIEW charter

AUTHORITY: All the team calls upon extensive experience in their fields.

DETAIL: We always check the facts – we never take a company's word for it!

HONESTY: We never allow corporate interests to obscure the truth.

VALUE: You are spending your own money – so price is always an issue.

VARIETY: Each month we select a mix of hardware and software.

QUALITY: We seek out the best and turn down dozens of products offered to us.



Our coveted Essential accolade is only given to the very best products – the things you can't live without.

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Would you like to feel deeply relaxed yet fully alert in just 7½ minutes?

Tune in and turn on to shut out everyday pressures – and unleash the natural resources of your mind – writes Chris Payne

Dazzling patterns of colour swirled in front of my closed eyes, and gyrating shapes soared across my visual field as hypnotic rhythmic tones caressed my ears.

All I'd done was put on the liteframes and headphones, pressed a few buttons on the MindLab's compact console and lay back with my eyes closed.

As the patterns and sounds slowed down I felt my mind sink deeper and deeper, and it seemed as if I was rolling back through space.

Clear your mind in minutes

Seven and a half minutes later I re-emerged – relaxed, alert and with no mind chatter. The serene state lasted for the next two hours. This was my first experience of using the remarkable MindLab.

It may at first sound like a way out Spielberg creation, but the MindLab mind machine is far from science fiction. This is science fact, tried and tested to help you cope with life's stresses and strains.

Using light and sound patterns matched to your own natural rhythm, the machine can induce a state of relaxation, and even aid learning.

Far from being futuristic, the MindLab is based on ancient techniques blended with sophisticated technology.

In 2000BC Ptolemy noted that sunlight flickering through the spokes of a rotating wheel caused fascinating visual patterns and a feeling of euphoria.

UK research validates the technology

Then in the late 1940s a British neuroscientist, W. Gray Walter, measured the effects of an electronic strobe using an EEG, which monitors brainwave activity.

He found that rhythmic, flashing lights altered activity across the whole cortex, producing trance-like states of profound relaxation and vivid imagery.

Since then, a series of independent studies have confirmed Walter's findings. Research now suggests that machines using light and sound can dramatically reduce stress.

Change mental states easily

Benefits include deep relaxation within minutes, improved learning ability and enjoyment of music, increased alertness, enhanced ability to visualise new goals, and better sleep at night.

The user of the MindLab chooses the state of consciousness that he or she wishes to obtain, and is lulled by a rainbow array of colours and rhythms into the chosen state of awareness.

Just press a few buttons and you can choose to relax, sleep, visualise, energise or learn. Lie back, close your eyes and let the kaleidoscopic light patterns and rhythmic tones gradually shift your consciousness.

The MindLab grows with you!

The MindLab is infinitely expandable too. Users can play through the MindLab cassette tapes or CDs with special sounds at the beginning of each track. These tones reprogramme the MindLab so that the hypnotic lights synchronise perfectly with the relaxing music which follows, or with the voice of a qualified hypnotherapist as he helps you to create changes in your behaviour.

Rave reviews in the press

"The systems reliably produce visual effects and relaxation... the experience resembles the closing sequences of 2001: A Space Odyssey."

– *New Scientist*

"The MindLab produces a feeling of total inner calm where once there was chaos. The technology of tomorrow really is with us today."

– *Fit Body magazine*

"The MindLab has received rave reviews from both the scientific community and the public... After a few minutes the dazzling spectacle winds down into a deeper state of consciousness."

– *New Scotsman*

"The machine really does need to be experienced to be believed."

– *Computer Life*

"The MindLab gives you hundreds of different methods, via amazing sounds, music and light displays, of achieving Nirvana."

– *London Evening Standard*

"The MindLab really works!"

– *Ms London*

Find out why thousands of people in the UK and one million worldwide are using this technology – ring 01625 502602 for your FREE brochure TODAY!

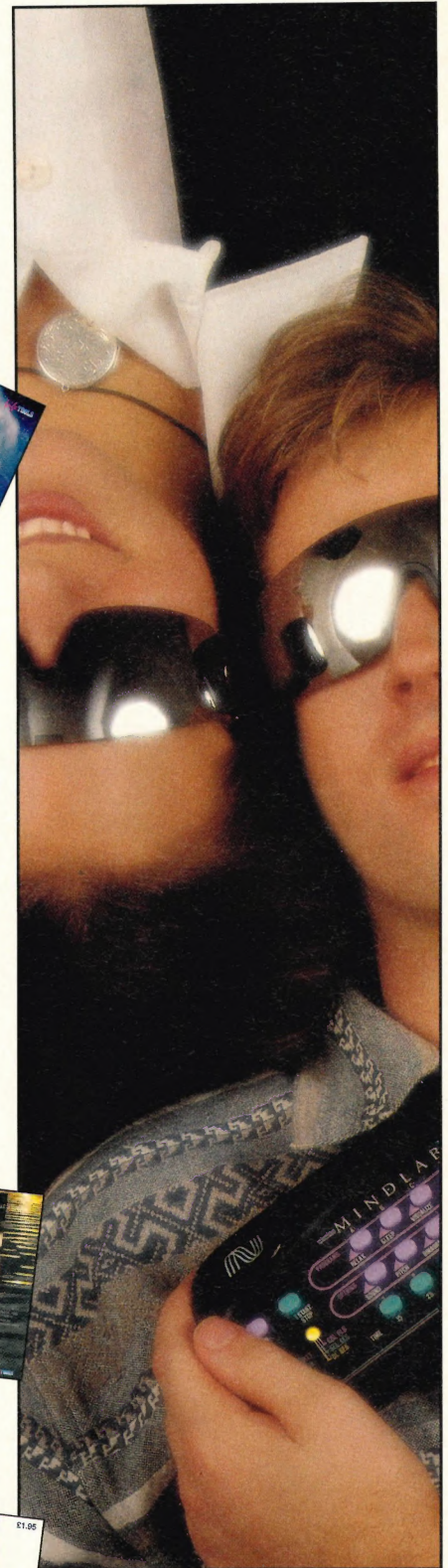
Settle your mind!

We'll also send you, **FREE OF CHARGE**, a report worth £1.95 detailing the fascinating results from scientific research of all our mind machines.



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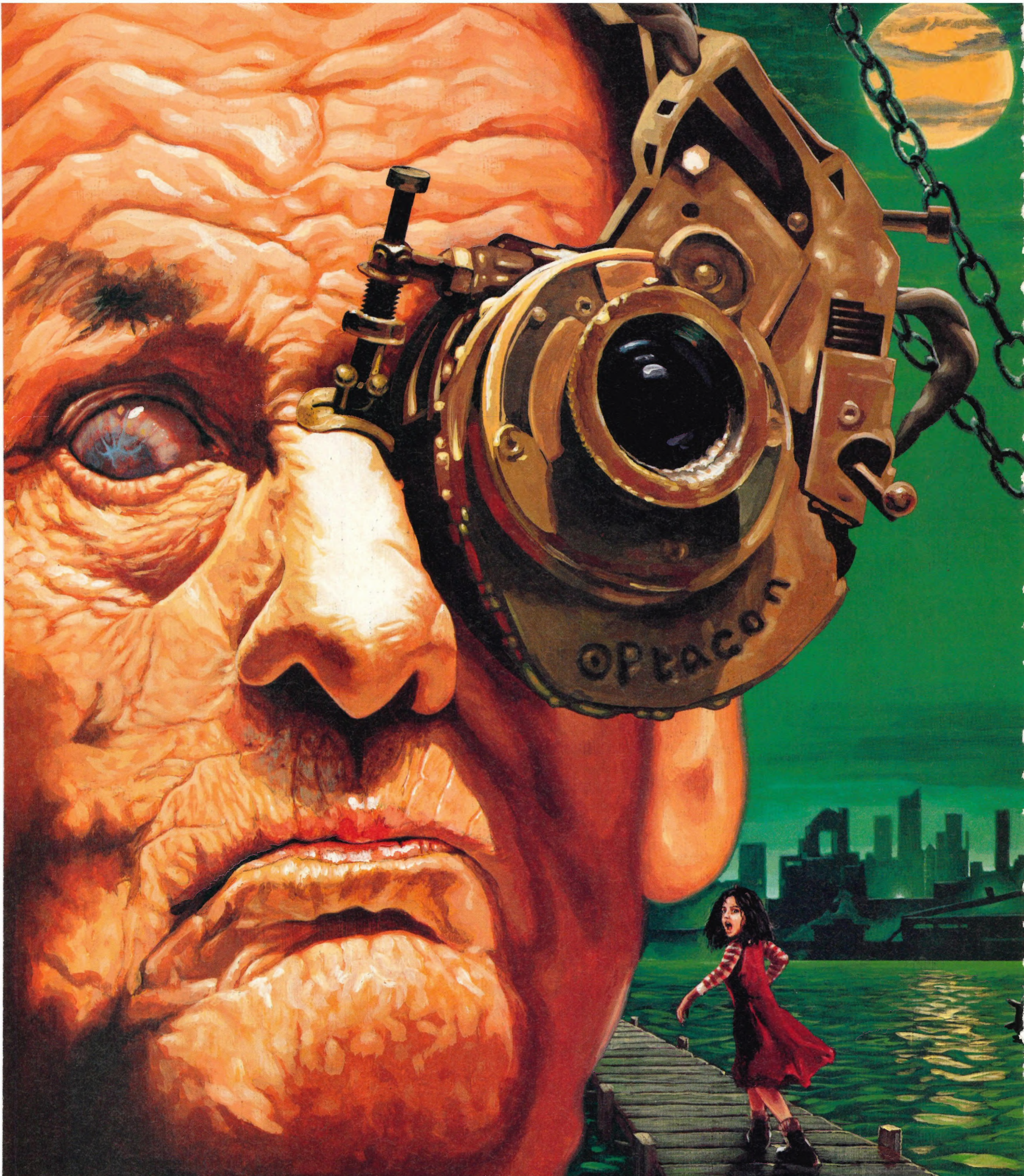
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D.A. INTERNATIONAL

This is a city with a secret. The children that used to crowd its streets are vanishing one by one, and no one knows where or why they've gone.

Perhaps Miette, a streetwise kid with a knack for petty theft could be the one with the skill and cunning to solve the mystery.

But can a child survive in such a strange and fantastical city, full of dangerous characters? Is she up to such a bizarre mission?

Or, more to the point, are you?

The City of Lost Children

**PG
ROM**





An audience with...

BILL ROPER

PC REVIEW talks to Bill Roper, vice-president of Blizzard and the force behind some of the finest fantasy games of the last two years.

With the Warcraft series Blizzard beat Command & Conquer at its own game. With *Diablo* it's now revitalising the role playing genre, and in conjunction with its Battle.net service it's proving that Internet gaming really is a viable multiplayer option. Here Bill Roper discusses the game's magic moments.

How popular has *Diablo*'s Battle.net service proven, and do you foresee all future Blizzard titles using it?

To date we have close to 200,000 unique users, and we continue to grow at 5,000 members a day. All Blizzard's future multiplayer games will also be playable over Battle.net.

The network and Internet support really brings out the best in *Diablo* – was the game conceived as a multi-player experience from the start?

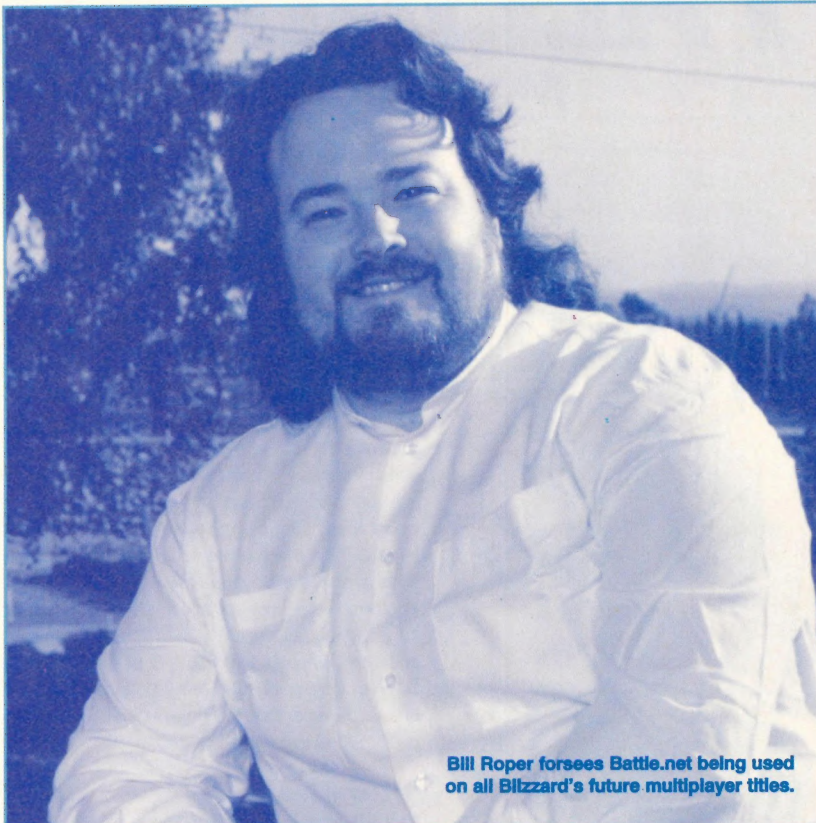
We are huge advocates of multiplayer options. While Battle.net was actually conceived mid-way through development, the multiplayer feature was part of our original design notes. We've envisioned an environment both cooperative and competitive, similar to those found in many traditional RPGs.

The only downside of the Battle.net system seems to give sneaky players the opportunity to build up their character then go around killing novices – has this been common?

There are some 'player killers' on Battle.net. The Battle.net community has, however, self-regulated itself by alerting each other about who is a known player killer.

Because of the very simple control system and random levels, some have criticised it as very simplistic in single-player mode – almost Gauntlet-esque.

Because of *Diablo*'s real-time environment, a simple control system was needed to ensure that players could manage their inventory, weapons and spells easily during combat without posing a



Bill Roper foresees Battle.net being used on all Blizzard's future multiplayer titles.

object collection that keeps the player engaged.

Many of us at Blizzard are *D&D* fans. We definitely wanted to include character development as a core feature in the game as in traditional RPGs.

***Red Alert* is obviously fresh competition for Blizzard. How do you rate it?**

Red Alert is a great game, we've spent a lot of time playing it around the office. Westwood is a very talented group of developers and as gamers, we certainly appreciate their dedication to continually working to improve gameplay.

Blizzard games have always relied on solid gameplay rather than clever graphics technology. Has this been a conscious decision?

Blizzard is made up of hard-core gamers, so our number-one concern is always gameplay. This is more than just a conscious

decision, it is our company philosophy.

decision, it is our company philosophy.

Blizzard's Starcraft will be out at the end of summer, with another title still under wraps that's scheduled for a Christmas release. Keep an eye out in future issues of PC REVIEW for further details on these, and other Blizzard titles.

***Diablo* seems to work in a similar way to *Dungeons & Dragons* in that the environment is almost incidental, it's character progression and**

WIN YOUR OWN DIABLO

You too can join in with the graphical RPG experience that is Blizzard's *Diablo*. Yes, PC REVIEW has teamed up with Zablac, the game's distributor, to arrange an incredible *Diablo* give-away. Why, because we think *Diablo*'s a wonderful game. In fact, we gave the game a mark of nine out of ten in our February issue.

The first 20 readers to write in to PC REVIEW with a postcard marked "I'd give my soul to *Diablo*" will be sent their own personal copy of the game. Remember to include your name and address on the card. Multiple entries will be disqualified. If you can't wait, you can buy yourself a copy from Zablac on 01626 332233.

For *Diablo* playing tips, turn to page 72. To find out how to hook-up two PCs for head to head gaming, see page 112.



Those who were once entranced by multi-user dungeons (MUDs) now find themselves playing *Diablo* via the Net.

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NEWS

PLAYER IN BRIEF

Bid for Freedom

Relive last summer's hottest hit, with *Independence Day* from Electronic Arts. Just like in the film, you'll have to infiltrate the alien mothership to knock out their defence network then send in your international fleet of F-18s, EF2000s and Soviet MiG-31s to dogfight in glorious 3D. "The script for *Independence Day* almost reads like a video game," says Dean Devlin, the film's producer and writer. "The game is faithful to the movie, letting players fight even more battles while providing the opportunity to become a character in the film."

Outflanked

Mindscape's *Su-27 Flanker Version 1.5* takes the already highly fancied original to new heights. Direct 3D support brings Gouraud shading into the frame. There's also 150 new missions and a random mission generator. Finally, a new multi-player facility enables up to 16 pilots to fly against each other over a local network. It costs £19.99, though you'll need the original version to fly.

Plain to See

Noir from Codemasters features less colours than any previous game. In fact, all the action takes place in black and white. It's a neat flourish, perfectly suited to this 1940s sleuthing adventure, which includes over 1600 period scenes made up from authentic photographs. Out at the end of the month, it will cost you the sum of £39.99.

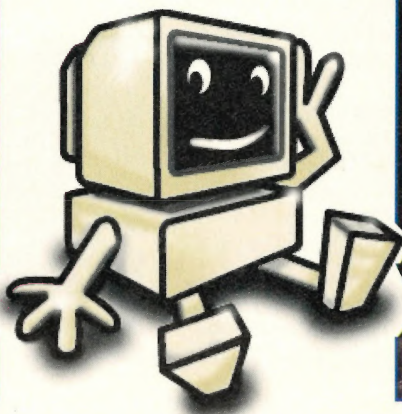
The Wait is Over

It's taken longer to come than a hip operation on the NHS, but *Theme Hospital* finally splutters into existence this month. The bizarre Bullfrog sim puts you in charge of a crazy hospital stuffed with sick patients. Unusually, low-end owners won't miss out on the action. "We didn't want to preclude anyone from playing *Theme Hospital*," said project leader Mark Webley, "which is why we included a low-res option. We want as many people as possible to play the best Bullfrog game to date."



FALLING PRICES

Manufacturers clear the decks



Now is a great time to buy a high-end PC, particularly if you're not after an MMX machine. But while PC prices are currently at an all time low, there is much disagreement as to why.

Leading manufacturers, including Olivetti, Acer and Toshiba have all slashed prices, while the newspapers have been packed with adverts promoting special offers. But while some claim it's just the age-old process by which various PC components become cheaper and outdated, others claim we're witnessing a special case, with MMX behind the current flurry of sales. They argue that because MMX equipped Pentiums are still in short supply, they are currently selling at a premium. Equally, a global glut of non-MMX machines has led to reductions, fuelled by fears that MMX will soon become the entry level standard.

Better value

Michelle Horner, Marketing Manager for Elonex agrees that MMX machines are currently selling for more, but says the price is expected to fall shortly. She says the real advantage to consumers is what you're now getting for your money. "For £1000 you get more memory, a much bigger hard disc and a faster CD-ROM drive than

you would have eight months ago."

"It's not just because of MMX," agrees Zoey Faulkner of Time Computer Systems, a leading PC supplier. "We have a strict company policy that we pass on price advantages to our customers because we recognise they are becoming an integral part of everyday life." Time had a sale in January, but has now introduced a new range for 1997. "Rather than slashing prices, we are updating our specifications while still offering low prices."

Improved Specs

Elsewhere, an entry level Olivetti P133 with a 1.2Gb hard drive now costs £880. A year ago, the equivalent system, a P75 with a 635Mb hard drive, cost £1335. "Intel has dropped its prices and we are channelling that through," claims Paul Evans, product

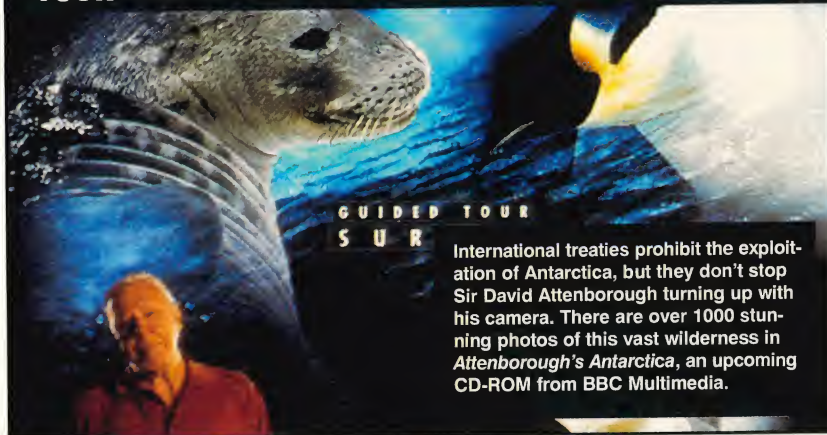
"New technology such as MMX comes in, and that replaces the previous Pentium PCs. The market keeps evolving"

Apricot's £2,299 MMX machine, the MS 660 runs up to 60 per cent faster than the non-MMX equivalent. But is it worth the cost?





YOUR FIRST LOOK AT ATTENBOROUGH'S ANTARCTICA



International treaties prohibit the exploitation of Antarctica, but they don't stop Sir David Attenborough turning up with his camera. There are over 1000 stunning photos of this vast wilderness in *Attenborough's Antarctica*, an upcoming CD-ROM from BBC Multimedia.

manager at Olivetti. "Whereas other manufacturers will totally delete a product line, we keep it going for as long as possible." He claims that more than just chip prices are behind the cost of MMX machines. "People buying MMX product expect a faster graphics card, more memory and a bigger disc," he says. "But we are not forcing that down people's throats. If you're budget conscious you're getting more for your money at Olivetti."

Future developments

Jacinta Gale, a spokesperson for the Dixons group, also sees specifications rising. She doesn't foresee any changes in pricing. "Prices aren't going to get higher or lower," she says. "Basically we see a cascade effect. New technology such as MMX comes in, and that replaces the previous Pentium PCs. The market keeps evolving."

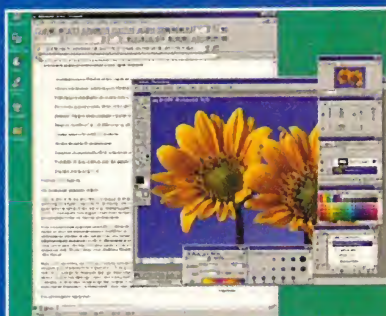
So if you're after a decent cheap PC, you should consider buying a non-MMX machine now. A potential upgrade path via OverDrive chips is already in place, and you may well be satisfied with the performance a fast non-MMX machine gives you. Combine a cheaper PC with a 3D card and you could get a killer games machine. If multimedia is more your thing, wait for MMX prices to fall. Unfortunately, it seems that PCs will never become consistently cheap – and there will always be a better machine just around the corner.

CHEAP PERIPHERALS

Even when you've bought a PC at the lowest price around, essential extras like monitors, graphics cards and printers, can easily cost hundreds more.

Shop around though, and you'll find there are bargains to be had. Panasonic, for example, is now selling its hi-spec entry-level 15" monitor for just £293. Multimedia upgrades are also cheaper than ever, with Matrox slashing 25 per cent off the price of its Mystique graphics card. The 2Mb version now retails at £128 (£163 for 4Mb).

Printers prices have also fallen, with laser printers much more affordable for the home user. QMS's DeskLaser 600, designed for Windows applications, prints at 600 x 600 dpi and costs just £288.



Lower prices for Matrox's Mystique 2D/3D cards make graphics like this much more affordable.

CHEAPER INTERNET

Members of BT's dial-up Internet access service will now pay lower charges, thanks to a 20 per cent cut in its flat monthly subscription fee to £11.75.

BT has also abandoned its one-off £20 registration charge, which may prompt other service providers to dump their own start-up fees. And there could be more good news whichever service provider you're with, as the BT phone network faces pressure from cable companies and the regulator OFTEL. For the foreseeable future, though, British users will not get all the benefits available to their US counterparts. "We are looking at ways of charging differently as competition heats up, but there are no firm plans to introduce free local calls," says BT press officer Simon Gordon.



BT's reduced the price of its Internet service but it's yet to cut the cost of local calls.

MULTIMEDIA MUSIC MAKERS

Bands big and small make interactive CDs

Music fans are increasingly getting more for their money, as established artists and up-and-coming acts alike produce interactive CDs for the same price as regular recordings.

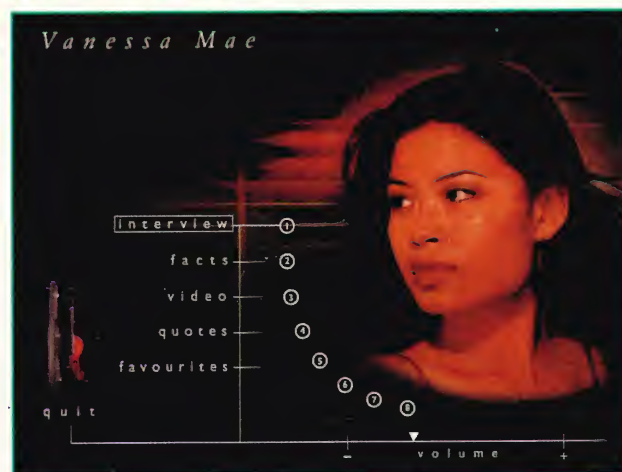
One of the most ambitious is a CD-ROM given away with copies of *On Air*, the new album by Alan Parsons, who worked as an engineer on Pink Floyd's classic *Dark Side of the Moon*. The interactive disc traces the history of flight, from balloons to the exploration of space, with the aid of graphics, videos and musical excerpts from the album. Ken Rose, who previously worked on effects for films like *Born On The Fourth Of July* and *Days Of Thunder*, also helped make the disc.

While Alan Parsons' CD-ROM is a voyage of discovery, enabling you to explore the themes behind his music, other stars are exploiting the medium to provide more personal information. Classical violinist Vanessa Mae's new release, *The Classical Album 1*, supplies biographical details and interviews recorded during the album's production. There are also a video of highlights from TV and concert appearances to accompany Vanessa's latest single, *A Little Scottish Fantasy*.

It isn't only established performers who are moving into multimedia. Norfolk-based outfit The Filter Queens are hoping to boost their profile with *Demonstration*, a new CD blending music and multimedia. It was produced on a budget of just £1,000: singer and writer Frances Glendinning told PC REVIEW. "We thought that by doing this it would get to people who wouldn't normally give it a second look. And it was also fun!"



The Filter Queens' *Demonstration* is only available by mail order. Call 01362 637817 for details.



By tuning to multimedia, Vanessa Mae has added another string to her bow.



MULTIMEDIA IN BRIEF

Manage Yourself

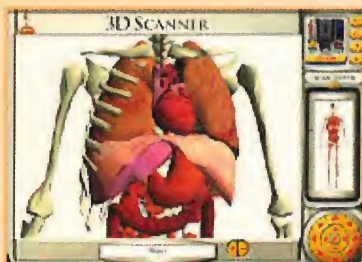
If your life is a mess, look out for a new self-improvement series from Focus Multimedia. *Manage Time, Manage Stress, Organise for Success, Attitude for Success* and *Communicate* all offer an easier life. You won't have to worry about your finances either, since they cost just £9.99.

All Art Explored

Any minute now, EMME's *Encyclopedia of Western Art* should arrive for review. Sold by Koch multimedia, this double disc extravaganza promises to cover the whole spectrum of Art, from architecture to painting to sculpture to disembodied cows.

Not so Brief News

Dorling Kindersley has announced its first new titles for 1997. Kicking off is the *Eyewitness Encyclopedia of Science 2.0*, which we've reviewed on page 79. Next will be the *BMA Family Health Encyclopaedia*, perfect for when your child gets ill or your ears start ringing. The *Eyewitness Encyclopedia of Nature 2.0* adds even more to an already award winning CD, including hundreds of new animations, species and a staggering 130,000 extra words. We've already looked at the MMX capabilities of the forthcoming *Ultimate Human Body 2.0* in PC REVIEW. Finally, don't miss *Earth Quest*, which explores literally every nook and cranny of our planet. More on all these titles as they arrive.



A View on News

Since early this century, the British Pathe News company has archived every historical landmark on film. Now it hopes to get its money back via a double CD-ROM quiz game - *Pathe News: The Century Challenge*. With over 3000 questions revolving around more than five hundred film clips, the disc costs £27.99.

Proven Language Course

Macmillan claims its new *Breakthrough* language discs are founded upon proven learning techniques, with the book versions selling millions over the last fifteen years.

The complete courses feature real-life conversations, video clips and photographs and are available for both French and Spanish. They go on sale in April, for the sum of £59.00 each.

Teach Yourself

Thousands of adults are now studying GCSEs through self-tuition courses. LCL is targeting them specifically with its forthcoming title, *CD Micro Science*. It has a pop-up virtual teacher, 10,000 questions and a mock GCSE which works out your expected grade. The price of an education (and possible qualification) is £34.99.

DRIVE FASTER

16-speed is here, but will CD drives go even faster?

CD-ROM drives are spinning faster than ever thanks to a rash of new products

from manufacturers like TEAC, Creative Labs and Yamaha.

TEAC's £163 16-speed SCSI drive transfers data at a maximum of 2.4Mb per second, at an average rate between 14 and 15.5 speed. Unlike conventional drives which spin at a fixed rate, the TEAC achieves its blistering pace with CLV (constant linear velocity) technology. CLV increases its spin speed



The INFR1800 is a 12-speed drive and costs £129 from Creative Labs.

when reading the disc's inner tracks to ensure a steady stream of data.

The main advantage for users with a Pentium 130MHz system, or higher, is less time waiting for the software to load. "You'll see less time looking at the hour glass on your screen than you would with an eight speed," says TEAC UK Sales Manager

Stuart Draper.

Fast as 16-speed seems today, it's likely that drives will get even quicker. "The indications we have from the industry are that 16-speed is a stepping stone to a faster product. But I think there will be a larger time gap between speeds than we've seen in the last few months," Draper adds.

Another CD-ROM drive utilising CLV is Creative Labs' new iNFRA 1800 12-speed drive, which costs £129. It's an internal unit and comes complete with infrared remote control and an intelligent voice to tell you which track is currently playing. Also bundled with the CD drive are two titles: Microsoft's *Encarta 97* and Gremlin's *Interactive Actua Soccer*.

Not only are CD readers getting faster, but Yamaha has just launched a CD Recorder that writes four times the normal speed, making the £529 unit useful for backing up and multimedia applications.



TEAC's 16-speed drive spins CDs faster when reading the inside to ensure a steady transfer of data.

FRENCH REVOLUTION

Top games to come from Mindscape breakaways

Look out for Kalisto Entertainment, the French outfit that broke free from Mindscape at the end of last year. Originally known as Atried Concept, 20-something Nicholas Gaume's company was renamed Mindscape Bordeaux when it joined the multinational giant in 1994. After a couple of mixed years, he bought the company back in a multi-million pound deal that's left Mindscape much the poorer. It's first two titles, *Dark Earth* and *Ultimate Race*, both look set to turn heads.

Dark Earth is a storming 3D RPG romp through a subterranean world where light is the most precious commodity. Delayed for months, it's now set for September. In contrast, *Ultimate Race* is a light and breezy drive, which is currently only available to Apocalypse 3D card owners. Kalisto hasn't quite decided what to do with *Ultimate Race* yet. It might be even be shareware, although in that case you'll need a 3D card with a Power VR chipset to enjoy it.



With design difficulties and a change of owners, will *Dark Earth* ever see the light of day?

SOLICITING ADVICE

AOL offers members legal guidance for free

Computer owners with a modem and an on-line account have long been able to read the news, listen to music, and even shop from their screens. Now you can get legal advice from solicitor Gary Jacobs, who is dispensing his wisdom to members of the on-line service AOL at no extra charge.

Gary will run a live monthly auditorium to help people tackle everyday problems with bureaucratic as well as legal issues. And if you thought law was dull, wait till you see what he has to say about The Child Support Agency and the Freemasons.

"Do not let them grind you down," he urges. "I believe that the small man must not be trodden on by the big guys. I don't let them kick sand in my face and neither should you." You can question Gary by subscribing to AOL. A free one month's trial is available on 0800 279 1234.



Solicitor Gary Jacobs offers free legal advice on AOL. Make sure you don't mention the Freemasons.



MOVING ON UP

MMX upgrades for existing PC owners

Intel has announced the first OverDrive processor upgrades to incorporate MMX architecture. The upgrades give existing PC owners access to the benefits of MMX, thus offering an alternative to buying a complete new system.

To date, Intel has announced two new MMX Pentium OverDrives. The first enables owners of 75MHz machines to speed up to 125MHz, while those with P90s will enjoy a nippy 150MHz. The second OverDrive cranks up 100MHz machines to 166MHz. Prices stand at £315 for the P125/150 OverDrive and £385 for the 166MHz model. Note that these upgrades completely replace the non-MMX OverDrives currently available for these machines.

Of course, as well as faster clock speeds, the big attraction of the new OverDrives is their MMX capabilities. A major enhancement of the Pentium architecture, MMX brings spectacular improvements to certain multimedia applications. According to Intel's figures, image processing runs up to six times faster with MMX, with video and audio playback and 3D geometry all running about three times faster. To enjoy these benefits, the software must be specially

written for MMX. Non-MMX software will run about 20 per cent faster, due to other general improvements made to the Pentium architecture.

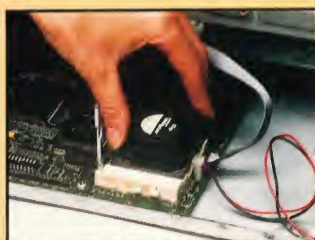
MMX PCs first went on sale in January, prompting some to criticise Intel of selling already dated PCs to hordes of Christmas shoppers. MMX compatible software has now begun to arrive, and almost every developer claims it's working on MMX titles. While the MMX OverDrives might go some way to placating unhappy punters, with hefty OverDrive price tags and the falling cost of standard PCs, they're unlikely to be overjoyed. Intel claims its new OverDrives are compatible with over 90 per cent of current PCs. You can find out whether your PC is upgradeable by checking a list at <http://www.intel.com/procs/overdrive> or by phoning Intel directly.

If you've got a faster PC but you want MMX, there are further

OverDrives on the horizon. Not quite as dramatic as the initial models,

future OverDrives will upgrade 120 and 133MHz Pentiums to clock speeds of 180 and 200 MHz respectively. There are no figures for P150s and P166s yet, but OverDrives are planned for these too.

If you've got anything less than a 75MHz Pentium and you want MMX, you're out of luck. There will be no MMX enhanced OverDrives for P60s, nor for 486 based PCs. You'll either have to buy a non-MMX OverDrive, or else buy a new system altogether.



MMX OverDrives make it possible to upgrade without buying a new PC.

CONFUSED?

If you're not quite sure which upgrade is for you, check out the table below. It summarises all the OverDrives currently on the market.

Product	Upgrade for	Upgrade Speed(s)	Price
Pentium Overdrive with MMX technology	100MHz Pentiums	166Mhz	£385
	75/90MHz Pentiums	125/150MHz	£315
Pentium Overdrive (without MMX)	60/66MHz Pentiums	120/133Mhz	£175
	486 SX2 and DX2	63/83 MHz	£175

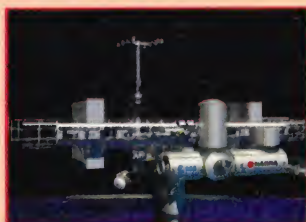
SPACE RACE Beat NASA at their own game

Ever wondered what toilets look like in a zero gravity environment? Find out this and more, with the help of *Space Station Simulator* from Maris Multimedia.

Together with teams from Russia, Canada, Japan and the European Space Agency, NASA is currently spearheading the multi-billion dollar International Space Station project – perhaps the most ambitious since Neil Armstrong looked across his backyard and decided he didn't like the view. With Maris' *Space Station Simulator*, you can beat them all to it, since it includes exactly the same modules the NASA engineers are creating. Who knows, maybe you'll discover they've forgotten a door.

You can even go on a space walk to

take a look at your finished station from outside. If it disappoints you, tear it up and start again. You'll eventually get it right, with over 40 components to choose from, including living modules, control centres and, of course, the infamous Space Arm.



Space Station Simulator comes from the makers of Redshift 2.

When finally in orbit, the International Space Station will be over 100 metres long. Your station will be tiny in comparison – only as big as your monitor – but with accurately modelled starry views, and MMX enhanced graphics, it's the next best thing. There's no price yet, but it's thought it will cost much less than the equivalent model from NASA.

Excited? Then don't miss the next issue of PC REVIEW, because we're bringing you an exclusive chance to try *Space Station Simulator*, on the coverdisc.

BOOKMARK

The latest page takes forever to download and no-one's laughing. Unless it's one of these sites that is slowly being revealed.



VICTOR LEWIS-SMITH'S HOME PAGE

Evening Standard columnist talks to the rich and famous, with downloadable .WAV files for proof and hilarious consequences.

<http://www.lewis-smith.com/>

FRANKSTA'S PARADISE

A training camp for practical jokers, it claims its techniques will leave your victims laughing not crying.

<http://www.voicenet.com/~mika/>

LAUGHTER - THE WORLD'S COMMON LANGUAGE

Teaches you how to become a Hilarity Therapist, and heal yourself and others with the power of laughter. Are they kidding?

<http://www.laughter.com/>

THE ADVENTURES OF COCKY AND SPUNKY

Rodent road kill victims look on the bright side with deadpan – or flat (sic) – humour.

<http://www.cruzio.com/~greggh/html/tacas.html>

RICHARD LEDERER'S VERBIVORE

A veritable master at mangling the myriad quirks of the English language.

<http://www.tiac.net/users/rlederer>

Directory

Watch for the new look .net Directory – out soon.



THE WORKS IN BRIEF

Sony's Lineup

Sony has brought out three new Trinitron monitors. The 15 inch Multiscan 100sf costs £329, the 17 inch 200sf at £549 while the 20 inch 300sf costs just over £1000. All models are Plug and Play, and include on-screen display adjustments as standard.

Even Faster 3D

Typical. We finish our in-depth investigation of 3D cards (which starts on page 33) then news of the Hercules Terminator 3D/DX card turns up. It claims to offer the fastest 2D/3D acceleration, enhanced video playback, a 1024x768 true colour resolution and refresh rates up to 160Hz. It is based on the unfancied S3 Virge chip though.

Top Camera

Fujifilm's DS-7 digital camera, already an award-winner on the Mac, is coming to the PC. It includes advanced features like a 60 fps active-matrix LCD display and a 2Mb removable floppy, which makes downloading images to the PC a doddle. It costs £500.



Now there's no excuse for not taking pictures of friends and family and then immortalising them on your PC.

Cheap Mice

For just £19.99, the Scroll Genie mouse gives you universal scrolling, on-line zooming and a short-cut to the Windows 95 Start button. Universal scrolling enables you to scroll through screens of Web pages or file listing by simply holding the middle button and moving the mouse.

Net Bundle

If you're looking to go on-line, Software Partners has announced a new £49.95 bundle. Your money gets you on-line toolkit Power Accessories and The Demon Internet Suite. Included in the collection is 30 days free Internet access, so you've really no excuse to give it a whirl.

Advanced AV drives

Micropolis claims its Tomahawk AV Gold disk drives are the only off-the-shelf solution for demanding audio/video applications. The range includes the industries first 9Gb drive to come in a 3.5 inch form factor, plus a new 4.55 Gb model. Micropolis claims a 63 per cent increase in transfer rate over other drives. No prices yet.

INTERNET VIDEO FOR REAL

RealVideo brings broadcasting to the Internet

First there was RealAudio, which took the Internet closer to radio broadcasts for the delivery of sound. Now there's RealVideo, with which moving pictures are streamed across the Web at 'newscast' quality on standard 28.8 kbps modems, and TV-quality over fast networks.

Over 60 companies are planning to enhance their Web sites using the new technology. You'll be able to watch a variety of movie clips broadcast over the Internet, including three new short films by acclaimed director Spike Lee.

For pop stars whose singles are normally seen on MTV, the Internet provides an additional mechanism for distributing their work. One such artist is George Michael, whose current videos, together with previously



RealVideo made its debut with three short films from the controversial American director Spike Lee.

unreleased footage, will be available from Aegean's Web site at <http://www.aegean.net>. And in the best Internet tradition, designers can make RealVideo clips interactive. Picture frames can be placed into the main movie, then control buttons added so that users can scan forwards or backwards like a conventional VCR.

Interactive music is

unlikely to stop there. Herbie Hancock's hit song *The Melody* was the first to be turned into a series of virtual worlds, made accessible with Superscape's Viscage 3D Web browser at <http://www.mediadome.com>. The site is updated every two weeks. Each world contains a musical instrument and a series of obstacles. Complete every challenge, and you can produce your very own personal mix. It makes Web music that bit more compelling.

What is RealVideo?

Retrieving video from the Internet once required too much pain for little gain. Before RealVideo, downloading a 30-second clip might have taken 10 times that long to download.

But just as RealAudio revolutionised sound delivery, RealVideo promises to stream the movie. Instead of

downloading the movie in its entirety before letting you view it, streaming enables you to watch the movie even as it's delivered. The standard will vary from 'newscast' quality on 28.8 kbps modems to full-motion quality over ISDN lines, and TV broadcast quality over a Local Area Network (LAN).

VIRTUALLY LIVE

Described as part concert, part club, and part installation artwork, the Virtual World Orchestra will attract a global audience of 30 million when it begins on 4 April 1997.

The three-day event will be rooted in Glasgow's Ojd Fruitmarket, although images and text from 120 countries around the world will be transmitted from the Internet onto a series of moving screens.

Artists appearing live in front of a 1000-strong crowd include percussion ensemble Dr Rapaniki, and performance artist Stelarc, known for allowing his robotic arm and bodily electrodes to be controlled by Internet users. The Web address is <http://www.vwo.mcg.gla.ac.uk>.



What a Chopper *Flight sims just keep getting better*

Two new helicopter simulations demonstrate just how fleeting computer realism is. Only a few years ago, graphics of the quality found in Nova Logic's *Commanche 3* and Simis' *Apache* would have been for Pentagon eyes only. Now they're coming to your PC.

Nova Logic has long been renowned for its military simulations. Its close relationship with military sources has given it an enormous advantage over its rivals, as demonstrated once again with *Commanche 3*. Granted exclusive rights to create a *Commanche* simulator, Nova Logic's flight model has been designed according to specifications supplied by engineers at Boeing Sikorsky itself.

Just as the *Commanche* replaces ageing helicopters like the *Cobra* and *Apache*, so Nova Logic has overhauled its patented Voxel Space engine for *Commanche 3*. To create the world, the designers have come



Controlling both the *Apache* and Nova Logic's *Commanche* takes quite a bit of practise.

up with over 100 different texture mapped objects, from Hinds to the hind quarters of cows. *Commanche 3* is due out in April. We'll be taking the *Commanche* for a spin in next month's PC REVIEW.

Another helicopter sim, *Apache* (from UK developers Simis) won't be out for a few more months. Although the *Apache* is an older helicopter, Simis' simulation couldn't be more up-to-date. We saw an early version making the most of an Apocalypse 3D card equipped PC, and while there were no enemies present, the landscape and chopper looked lovely. More news on Simis's *Apache* release as soon as it's available. Get those trigger fingers ready for action!

VIRTUAL VOTING

Pick your own politicians with *Fantasy Cabinet*

Following in the footsteps of *Fantasy Football* and *Fantasy Formula One* comes *Fantasy Cabinet*, in which you play Prime Minister and pick your own choice of ministers.

The free on-line game by Videotron will be up and running as soon as John Major decides to go to the country, and will end on election day itself. Players choose 20 MPs to fill key government posts, with the hope of winning a hamper of goodies from the House of Commons shop.

Fantasy Cabinet is on the Internet at <http://www.videotron.co.uk>. You'll find more about the general election in our special feature on page 24.



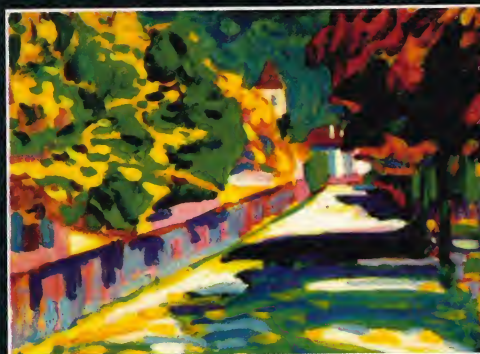
The cabinet room in Number 10 Downing Street contains a large table with lots of chairs. It's your job to fill them.

DESIGN ONLINE

Art students all over the world can now get their digital masterpieces assessed via the Internet, thanks to the first accredited on-line course in *Fractal Design Painter*.

Classes will be run by experts from The Maryland Institute in a virtual classroom on the World Wide Web. Students create pictures with the help of a digitising tablet using *Painter* and send them for assessment by email. Instructors will be able to consider paintings using *Painter* script files which show how the works were created step-by-step by the student.

Discount coupons for the course are bundled with all new purchases of *Painter 4*. It's available in the UK via Principal Distribution on 01756 704040.



The Maryland Institute uses Kandinsky's *Autumn in Bavaria* to illustrate colour technique.

DESIGN ONLINE

Digging up demons from the past

First person perspective games are thrilling, sure, but charging around from an Egyptian's point of view is even more challenging. In *Exhumed*, from BMG Interactive, you're an adventurer, charged with laying the mummy of the dead king Ramses to rest.

Despite its ancient setting, *Exhumed* brings some new touches to the genre including hand-held flaming torches, magical power-ups and an off-the-shoulder camera viewpoint. What's more, it costs just £19.99. You'll need to explore the whole valley of Karnak to prevail, swim through flooded ruins and negotiate tricky block puzzles to track down every last clue. Alternatively, just shoot your friends in the back via the multiplayer mode instead.



Can you help lay the dead king Ramses to rest in BMG's new adventure *Exhumed*?

VALUE ADDED

Get more from *Red Alert*, *Quake* and *Settlers II*

Like Manchester United memorabilia or a new flu virus, add-on discs for great games will always find an audience. New levels and weapons for blockbusters *Command & Conquer: Red Alert*, *Settlers II* and *Quake* are all out this month, just in case you can't get enough of any or all of them.

Virgin's *Counter Strike* gives you 16 new *Red Alert* levels, 100 more multiplayer maps and advanced nuclear technologies. Best of all though are the fiendish additions to your armoury – tesla tanks, self-defending ore trucks and Soviet wonder dogs are amongst the highlights. It costs £14.99. Similarly, the *Settlers II* mission CD gives you four new continents and cultures to explore and corrupt, plus a map editor. Buy it and you'll never need another *Settlers II* add-on.

Finally, although the *Quake* missions packs (distributed in the UK by Activision) come straight from id itself, they'll have a tough time beating the free levels we give away each month for value. The most exciting additions are the new baddies – a flying dragon

guardian boss, plus his retinue of gremlins, cyborgs and electric eels. Nice, but £20.



Buy these chaps for £20 and you'll give more money to those who really deserve it – the millionaires who designed *Quake*.

NEWS CONTACTS

Activision	.....	01895 456700
AOL	.....	0800 279 1234
Blue Byte	.....	01604 232200
BMG	.....	0171 384 7500
Creative Labs	.....	01734 334 322
Dorling Kindersley	..	0171 753 3488
Electronic Arts	.....	01753 549442
Euromax	.....	01262 601006
Focus Multimedia	..	01889 570156
Fujifilm	.....	0171 5865900
Hercules	.....	www.hercules.com
Intel	.....	01793 403000
Kalisto	.....	01435 862212
LCL	.....	01491 579345
Macmillan	.....	0171 8818000
Maris	.....	0171 488 1566
Micropolis	.....	0118 9751315
Nova Logic	.....	0171 405 1777
Simis	.....	01483 414344
Software Partners	..	01480 431444
Sony	.....	01932 816000
TEAC	.....	01923 819 630
Time	.....	01282 777111
Virgin	.....	0171 368 2255
Yamaha CDR400	....	01908 366 700



THE CHARTS

Top 10 selling PC CD-ROMS

- 1 (1) *Command and Conquer: Red Alert*
Virgin
- 2 (2) *FIFA 97*
EA
- 3 (4) *Tomb Raider*
Eidos
- 4 (7) *Champ Manager*
Eidos
- 5 (3) *Flight Simulator*
Microsoft
- 6 (5) *Rally Championship*
Europress
- 7 (-) *Sega Rally*
Sega
- 8 (-) *Duke Nukem 3D*
US Gold
- 9 (-) *Quake*
GTI
- 10 (-) *Diablo*
Blizzard



Pre-order your Special Edition Pack!

Includes free 36 page book on the making of MDK. Order from your software stockist now!



PREPARE FOR A RELIGIOUS EXPERIENCE

MARCH 27th

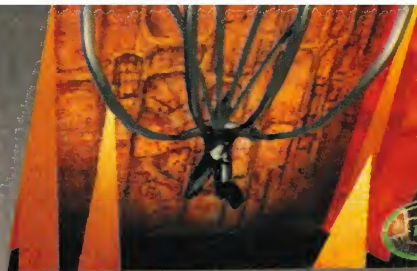
» Looks like being one of the best PC games ever « PC ZONE

» Looks to be one of the most innovative and exciting games we've seen in years « PC FORMAT

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This picture, custom made for PC REVIEW, shows Cryo's new OMNI-3D technology at its best.



IN FOCUS

CRYO INTERACTIVE

With some great games in the pipeline and an incredible new graphics engine, 1997 looks big for sleeping giant Cryo.

Take the Eurostar to Paris and you'll discover the trains only hit top speeds once in France. Somewhat similarly, French developer Cryo Interactive is famed for pushing PC graphics to the limit. Yet soon it will be known for more than just its good looks. In its offices in the less than salubrious Chinatown district of Paris, Cryo is

working on a batch of games that seem set to launch it into the superleague of PC games publishers.

Initial success

Having already achieved massive success with its recent multimedia hybrid *Versailles* (already selling over 100,000 copies) Cryo

hopes new games like *Atlantis*, *Riverworld* and *Ubik* will consolidate its success.

Wandering through their smoky offices, you quickly notice the fresh air of expectation. The largely French development teams certainly strike the cool, nonchalant poses they're renowned for, but they're also eager to show off stunning spoof advertisements

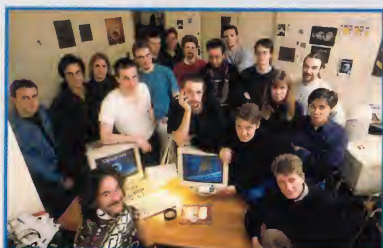


Seth. Pure, virginal, innocent... and wearing a skirt.

SERENE: *Work in progress: Atlantis - The Lost Tales*

Atlantis was an idyllic, peace-loving city. Or at least it was until you showed up...

When Cryo resolved to move from to full-blown publisher, it needed a great debut game to turn heads. The game to do this is *Atlantis: The Lost Tales*. *Atlantis* mixes Cryo's trademark stunning visuals and dreamlike atmosphere with new cutting-edge technology that it hopes will make its name.



The *Atlantis* design team was led by graphic designer Thomas Boulurd (centre).

It's a graphical adventure set at the dawn of human civilisation. "Our inspiration came from everywhere and nowhere," says lead graphic designer Thomas Boulurd. "We took the basics of the Atlantis myth, then mixed in Roman, Egyptian, Chinese and other classic elements." The resulting culture is rich and sophisticated – so much so that the plot eventually sees it fragment to create the great human civilisations of history. But long before that, you, as the young hero Seth, must battle to save Atlantis' Queen Rhea in a journey that takes in five different continents and cultures.

Seth's a rather unusual hero; he's never even seen a drop of blood. For while *Atlantis* is a technologically advanced civilisation, it has no standing army. Its inhabitants are more interested in refining their telekinetic powers and inventing new art forms than in conquering the world. Alas, at the start of the game the

peace-loving Queen Rhea is kidnapped. The prince consort seizes the throne and raises an army, hell bent on imposing Atlantean rule on the globe. Thus Seth's drawn into a turbulent world – but having spent his life contemplating the clouds he's not particularly handy in a scrap. "Because the hero's so peaceful," Boulurd warns, "most of the time it's better not to choose to fight."

It's easy enough to imagine a mythical world full of intrigue. But when every facet of that world will be generated in 3D, precision becomes a top priority. Complicating matters, all Boulurd knew for sure at the start was that *Atlantis* would be an adventure game. How it would be implemented was undecided. "We didn't know if it would be real-time action and combat, pre-calculated or what," he says. Even when Cryo decided to employ its stunning new OMNI-3D technology there were problems. "At



OUT OF THE FREEZER

What Cryo has in store for you...

INTERVENTION

Due May

In most games, you aspire to become a hero or maybe a mayor. In *Intervention*, you begin as a god. Still, as the good book says, that's just the beginning. Create people to worship you, thwart the ambitions of other celestial folk (over the Internet) and transplant your peoples through time and space. Here belief is the currency. As your civilisations advance and your people forsake you for soap operas and computers, you might just feel a little divine retribution is called for.



Riverworld sees you struggling for world domination.

troops into battle. Think of *Civilisation II* meeting *Warcraft II* in a vivid windswept 3D plain, falling in love and giving birth a new type of game. We had to be dragged kicking and screaming away when we saw it.

THIRD MILLENIUM

Due June

Over forty minutes of animated news footage means the revolu-



tion will most definitely be televised in *Third Millennium*. Set in the 500 years leading up to the year 2000, your aim is to take over the world. Call back the F22s though, this isn't a war game. Rather, you'll win over countries by demonstrating your management skills. With a map accurate down to 5kms and hundreds of economic and sociological parameters, *Third Millennium* moves games like *Sim City* and *Civ* into the next century.

DREAMS

Due in Autumn

Many a game wears its influences on its sleeves. And Cryo might



Welcome to Dreams, world of the subconscious.

well have a dream team here, pouring *Tomb Raider*, *Diablo* and Sega's *Nights* all into the melting pot. You must walk, run and, most impressively, fly through a 3D world of the unconscious. Collect various objects to increase your power, make friends and unmake enemies. If

you've ever dreamt of flying, this is the game for you.

UBIK

Due in Autumn

Wow! *Ubik* is like a pumped up *Syndicate Wars* crossed with *Impossible Mission*. You've got a pool of crack commandos and a dossier of missions to work on. Select the right guys for the job and you'll get your perks – plus you'll improve their stats. Botch the mission and you might lose good men forever. With leathered hardnuts clearing rooms like choreographed commandos in the early version we saw, we say get your orders in with Santa.



Utik will demand you utilise such skills as fighting and strange psychic powers.

IT'S THE NEW SOUND

As well as OMNI-3D and OMNI-Sync, Cryo has also developed OMNI-Sound. This links the game's sound effects to match events on screen. Noise also changes depending on the distance from the noise maker – but you'll still have to decide whether a rustling sound is coming from a bird in the canopy or a murderer in the nearby bushes.



RIVERWORLD

Due Late May

Imagine you could call on the military mind of Alexander the Great, the genius of Einstein and the survival skills of Tarok, the stone-age man. *Riverworld*, based on Philip Jose Farmer's classic sci-fi novels, lets you recruit these and other notables to invent new technologies and lead your

from *Third Millennium*, dancing kick boxers from *Ubik* or the storyboards from *Atlantis*.

New investors

"Here, there's a feeling that the developers are the publishers", says Marketing Manager Thomas Kleingartner. The last few years have seen staff numbers swelling to over

140. Cryo has its own in-house film studios, sound recording rooms and full post-production facilities. "It's a very expensive economic model," says Kleingartner, "but the developers appreciate having so much talent under one roof."

Kleingartner compares Cryo to a ship. Certainly the large central office, with its

low beam and frosted glass sub-offices resembles a hull, with the other specialist teams working below look like engine boys. But with the preponderance of filing cabinets and cigarette smoke, you could just as well be in Chicago circa 1943.

Much of Cryo's confidence no doubt comes from recent investment by French ▶

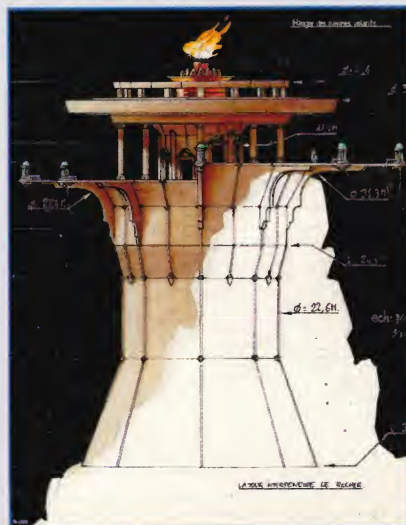
CD REVIEW

See the splendour of Atlantis yourself with our exclusive demo.

the beginning, OMNI-3D wasn't totally effective," he confesses. "We weren't sure if it was going to work!"

Soon the Irish script writer Johan Robson was feeding Boulurd the locations and story elements that would make up the plot. In turn, Boulurd began preliminary sketches a month before modelling began. "After that the modelists started chasing me and it became a bit of a race," he admits. Slowing him down, no doubt, was his compulsion to stand behind the 3D designers and force them to follow his plans to the metre. Boulurd's designs are incredibly detailed – they look like architectural blueprints. "I try to put as much detail into the designs as possible. Even the light falling through the window will eventually be replicated by the modelists."

Working with P200 Pros packed with 128MB of RAM and 3D Studio Max, the modelists were soon creating the enormous complete 3D island of Atlantis. The only real snag occurred half way the project, when ▶



If you look closely, you'll see the design of the docks are specified down to the metre.



"The whole island of Atlantis, right down to the palace and the rooms inside them are in one huge database," says Thomas Boulurd.



17TH CENTURY HI-TECH

When you try out the exclusive *Atlantis* demo on this month's coverdisc, you'll no doubt be desperate for more OMNI-3D. Can't wait for the full game? Then why not try *Versailles 1685*, the 17th century multimedia adventure in which Cryo first premiered the OMNI-3D technology. We reviewed *Versailles* in Issue 64 and thought it was very nice, awarding it a handsome eight out of ten.

New Technology: OMNI-3D and OMNI-Synch

Looking at adventure games from another perspective



Cryo is known for its beautiful games. Now it's backing up its artists with a technological first – OMNI-3D. A brand new graphics engine, OMNI-3D gives you a panoramic 360 degree perspective on every scene. Instead of the flat images of traditional point-and-

click adventures, look up at the ceiling in OMNI-3D and the walls curve. The level of detail is starting, at 640 x 480 resolution with 65,000 colours.

"It gives great freedom to both user and developer," says Cryo's Thomas Kleingartner. "Instead of flat photographs or awkward, jerky horizontal pans, in OMNI-3D you can look anywhere with seamless fluidity."

The French are *très* secretive about their new engine. Boulurd will happily tell you that the forest scenes in *Atlantis* took as

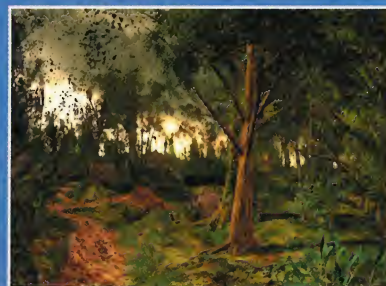
much as 11 hours per frame to calculate, but not what's being calculated. While Cryo is a dab hand at compression, it clearly can't be pre-generating every possible view. While the paths between scenes are standard FMV, the in-game engine is fusing pre-calculated data with other polygons shunted in real time.

"Yes, basically it is real time," says Thomas Boulurd in a whisper. "More than that, I'm not allowed to say."

Another side to the new graphics engine is OMNI-Synch. This recognises phonemes in digitised speech, generating matching mouth movements in real-time. Watch a character speaking and you'll see his mouth move appropriately. As well as being quicker than hand-tailored animation, it also enables different camera angles when dialogue is repeated. It's cheaper too, since OMNI-Synch can translate into different languages, saving on localisation costs. But how did Cryo ever get that Atlantian accent tuned so finely?



When characters speak to you in *Atlantis*, you'll notice that their mouths work just as you'd expect them to. Theoretically you could lip-read everything they say!



Incredibly, the whole scene is made of just seven trees, and only three types of leaves.

► luxury holdings company Louis Vuitton-Moët Hennessey, which now owns 20 per cent of the company (and a host of other successful French luxury brands including Christian Dior, Givenchy and Kenzo). With the backing of LVMH, Cryo is poised to become a publisher in its own right after hits with partners like Mindscape, Interplay and Virgin.

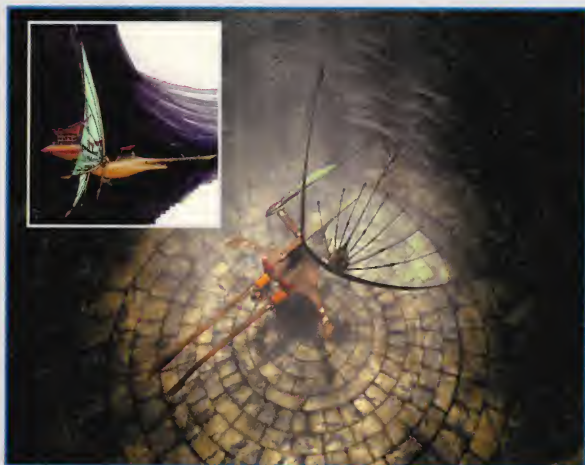
More than just a pretty face

Kleingartner acknowledges that Cryo has a tough challenge ahead. Games like *Dune*, *Dragon Lore*, *Mega Race* and *Lost Eden* have all sold incredibly well.

Despite this, there have been lingering accusations of form over content. "We've always been known for our graphics – now

we've got to add the gameplay," concedes Kleingartner.

It's certainly a time of change, and Cryo's distinctive logo hangs in the balance as the company forges for success. Will the famous female cryogenised French astronaut of the firm's logo takes off into orbit, or will she fall into a deep, dreamless sleep? (OB)



An early ship sketch reveals the melange of cultures that went into the design. The rendered flyer stays true to that vision.

► the team upgraded from 3D Studio 4 to Max. The packages don't work in exactly the same way, and for a scary moment it seemed that work would be incompatible. Luckily, the team got around it.

The results are extraordinary. The OMNI-3D engine gives you a breathtaking 360 degrees of vision, with smooth pre-generated paths whisking you between locations. Animated characters stand before scenes of incredible complexity – a wild boar in the forest of Cabernak is running through a game set of some six million polygons. Fires flicker and glimmer in the hearths, whilst smoke rises through leafy canopies.



The light streaming through the roof of the library was present in the initial design sketches.

By taking the graphic realism of point-and-click games (together with the genre's traditional puzzles and wordplay) and by adding a measure of the freedom afforded by real-time 3D games, Cryo has breathed new life into the graphic adventure. *Atlantis* should offer proof of that.

Boulurd is now working on the box artwork that will complete the *Atlantis* package for its release date later

this month. "The designer's job starts at the start and ends at the end," he says, with typical French candour.

In reality, we'll be finishing off the story by playing and reviewing *Atlantis* in next month's issue. Make sure you don't miss it!



REDEFINED DESIGN

If you aren't already acquainted with the work of Leeds-based developer Software Refinery, then now might be a good time to start. This three-man team is responsible for Gremlin's *Slipstream 5000*, rightly regarded by many as something of a milestone in PC gaming. Not only did it herald a new, more console-based style of design, the 3D system and imaginative use of textures made for a graphically impressive and damned speedy racing experience. It's now been re-released on budget, for £12.99.



"There's not another game with ships that manoeuvre like this," claims Ade Carless. "You can lock the pitch and strafe like in a Harrier. It makes targeting a little easier, and the ship a lot more dynamic. Once you've got a feel for it you can pull off some pretty cunning manoeuvres."

GREED IS GOOD

Work in progress: Hardwar

3D black marketeering, coupled with trendy techno tracks and freezing lunar craters – Hardwar is looking hard core!

With the current vogue for all things 3D, it's little surprise that the *Elite* formula of dogfighting and trading is being resurrected. This is a formula which offers instant thrills, backed up by the opportunity to build power and follow numerous long-term goals. Longevity and instant appeal all in one handy game style. *Privateer 2: The Darkening* has already mined the formula pretty successfully, but with *Hardwar*, Gremlin is set to take a far more individual, less FMV-heavy interpretation of the style. If you're familiar with Software Refinery's previous PC creation, *Slipstream 5000*, you should need little convincing as to the

developer's talents with 3D technology. Similarly, anybody with a finger on the pulse of club culture will be well aware of the formidable reputations of record label Warp and art team Designers' Republic. Combining the resources of all three, *Hardwar* is shaping up to be a very important game indeed. To call it an *Elite* for the rave generation is really only to touch the surface of an epic tale of mercenary pursuits on Jupiter's icy moon, Titan.

Nine giant craters are what you get to call home in *Hardwar*, flying in solar-powered craft known as Moths, while trading, stealing, taking on covert missions and attempting to build resources while unravelling the

mysteries of the central plot. "It's all about cover-ups and conspiracy," reveals designer and producer Ade Carless. "At the beginning of the game solar power is the main source of energy, until nuclear power is rediscovered. It's treated almost like a dark magic."

The fact that some craft rely on solar power is a satisfying touch, introducing the very real danger of power-loss at night time. It's here that lightwells become important. They provide a valuable source of night time energy, but their owners aren't keen on you soaking up the rays. As with almost every aspect of the game world, this ensures there's a very real risk element to consider.

Stopping in for a chat



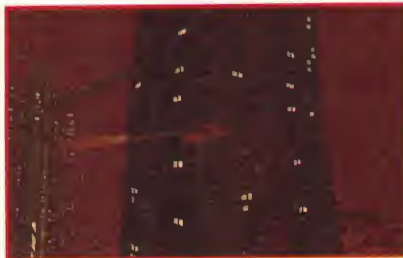
When you pull into one of the buildings on Titan, you get to interact with these lovely video-phone people.



This particular inhabitant of Titan is played by Kate Vale. According to Gremlin, the rubber suit she wears was buffed up between takes.



"The push of it is really that it's an arcade trade-'em-up. Shooting things to steal other people's cargo is the bread-and-butter of Hardwar," says Gremlin's Ade Carless.



Lighting effects are a major feature of Hardwar, and with full day and night cycles, your solar-powered craft face the danger of running out of energy at night.



In multiplayer mode, dispense with the plot and enjoy a dogfight with up to 16 players. Gremlin is planning to put downloadable ship models and textures on its Internet site.



The 3D models of the Moths are brilliantly detailed, so getting five or six to move smoothly around on screen is quite an achievement for developer Software Refinery.



Although a 3D card edition is planned, the standard version was impressive enough to prompt one journalist to ask which type of accelerator was being used for the demo.



The dogfighting is expected to be a lot more intense than Privateer 2. And with such a claustrophobic environment, you've really got to think about what you're doing.

MELLOW YELLOW

One of the most striking elements of Hardwar is the depiction of Titan's colonies. Ochres and yellows dominate, with some excellent fogging and spotlight effects adding to the otherworldly feel. "The imagery of the cities is actually based on a 70s sci-fi artist called Chris Foss," reveals Ade Carless. "It's a weird inspiration, but the results are really striking and you can get a really good sense of scale." Add to this the iconography of Designers' Republic and you've got one very unique looking game.

The *Hardwar* world is impressively detailed, with shady corporations working to their own ends, and underground gangs performing the corporations' dirty work. "If you shoot at a corporation's ship there are repercussions, but it's possible to redress the balance by carrying out some work for them," says Carless. Similarly, attacking independent traders will incur the wrath of the authorities. "The police will contact the player using the game's email system, demanding a bribe."

"It's like *Elite*, to an extent" he acknowledges, "but there's a lot more to it than that. The game actually features 28 missions in the main plot, which are totally linear. But it gives the illusion of non-linearity by encasing them in randomly generated missions."

Software Refinery's *Slipstream 5000* featured a nifty 3D system, but for *Hardwar* the developer started again from scratch. "It's a totally bespoke engine," says Carless. "We

sat down and decided exactly what we wanted from this game, and then wrote an engine to suit." The results are hugely impressive, with elegant Moth space craft, and nine very distinct and very large craters – some with water and dams, others packed with buildings, while another features sandstone formations. Famed 70s sci-fi artist

Chris Foss was apparently something of an inspiration to the game artists, while regular Sheffield visitors may even recognise one or two locations and some bits of industrial architecture.

The music comes into play via a cleverly integrated pirate radio station, called *Hardwarp*, which is used to pass on rumours and useful gossip to the player. "Initially there'll be about four tracks available, but players will be able to earn new tracks as the game progresses," says Carless. "Because we're using dark techno – from Autechre, Blag Dog and LFO – it matches the visuals really well. It's all very broody."



The way the Moths handle has been similarly well thought out, with simulation-like physics modelling making piloting a real skill. The addition of a strafing ability not only makes control and weapons aiming that bit easier – particularly if you were raised on *Doom*-type games – it also opens up some great Harrier-style control possibilities.

But perhaps *Hardwar*'s coolest idea is the concept of in-game software. In addition to the five different craft that you can fly, and the dozen or so weapons systems and hardware add-ons, you can also build up your very own range of software enhancements for the Heads Up Display. "You start off with a basic crosshair, but can build up to have a great radar system, a targeting recticle and all sorts of stuff. Take a pounding in a fight and you'll see a piece of software on-screen display waver and disappear" warns Carless.

Time will tell if *Hardwar* can outgun *Privateer 2* to become the definitive *Elite*-inspired trade-'em-up. But at the very least, the iconography of Designers' Republic and the techno of Warp promise to make it the coolest sci-fi epic on the block. (MR) Available from Gremlin in April.



The logos you see in the game were drawn by art gurus Designers' Republic.



Believe it or not, this is Ade Carless. Yes, he decided to appear in his own game.



And for a moment, we actually thought Gremlin had hired Dennis Hopper to do the FMV bits.

THE CAMPAIGN
FOR POLITICAL
ECOLOGY
HOMEPAGE
<http://www.gn.apc.org/eco/>

NEW COMMUNIST
PARTY
<http://www.geocities.com/CapitolHill/2853/homepage.htm>

THE CONSERVATIVE
PARTY
<http://www.conservative-party.org.uk/>

THE ECONOMIST
<http://www.economist.com/>

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EUROPEAN GROUP
<http://www.keele.ac.uk/socs/ks40/ceghome.html>

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<http://www.labour.org.uk>

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<http://www.libparty.demon.co.uk/>

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MONSTER RAVING
LOONY INDEX PAGE
<http://www.raving-loony.pv.org/>

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<http://www.natural-law-party.org.uk>

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DONORS
<http://users.powernet.co.uk/hack/sleaze/>



All the Web sites
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<http://www.futurenet.co.uk>



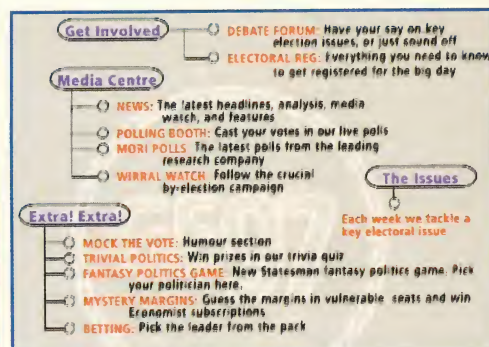
The democratic machinery of the UK is extremely complex, but does taking it online help to untangle the politics for the layman, or merely produce more confusion?



Everyone's taking advantage of electioneering on the Web...



...but will you find anything new here, or is it just the same old political slanging match?



General Election 97's sitemap gives just an inkling of the material on offer. Anyone for Fantasy Politics?

Everything you ever wanted to know about...

THE ELECTION

We can't tell you whether or not Labour will raise taxes, but we know a site that can.

Richard Nixon was the last great radio politician. A fine orator, television revealed him to be a pug-ugly bulldog of a man and sealed his fate. Now American politicians jostle to appear taller – in every presidential election bar one, the loftier man has won. Even in the UK, the old white-beards of Parliament have given way to brash, cocky and (relatively) handsome youngsters like Blair and Portillo. By bringing us the politicians, the media plays a critical role in our democracy.

Which is why the Internet will play a big role in deciding our next Prime Minister. According to one recent study, nearly three in ten US voters were on-line at some point during the Presidential elections, and thus fair targets for Net-based propaganda. As the campaign closed, one in ten accessed political Web sites published either by the media or the rival parties themselves.

"Any question of acceptance of the Internet as a source of political information was resolved on election night," says Adam Clayton Powell III of Washington's Freedom Forum, a group promoting the use of the Internet as an alternative media source. "So many news-hungry Web users were online trying to get election returns that the network was swamped."

In the UK, over two million British people will use the Internet between now and polling day. Most of those will be the middle class floating voters that so worry the campaign managers. What will they find online? What will Peter Snow's swingometer look like in *Active X*? The first clues are at General Election 1997, a comprehensive Web site devoted to covering the general election. It sets the standards others will need to follow. You'll find daily news on key electoral issues, on-line debates between readers and information on all the main parties. The site will grow



You can get everything, from Treasury reports to the Monster Raving Loonies, online.

as election day approaches, incorporating Mori polls and manifestoes. It's one to watch.

While General Election 1997 includes some links to other sites, it's fairly self-contained. Elsewhere, finding politics on the Net is like looking for it in a students' union – there's lots of noise, but little worth hearing. For example, AltaVista will point you towards plenty of election information – if you happen to be particularly interested in the election of the Sheriff of Dale County. Yahoo in the UK's political links are better, but you'll still find a preponderance of political minutiae and rantings by lunatics.

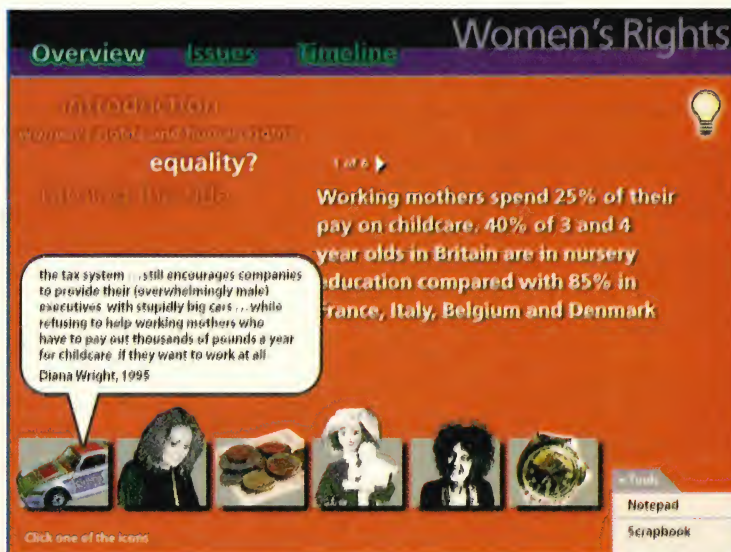
Depending on your persuasions, you'll find the same at the Web sites of the main parties.

The Conservative Party's page contains jokes and policies, but also repeats the controversial New Labour New Danger adverts. Equally, the Labour Party's very first page kicks off with an assault on the Tories and their track record. It's electioneering all right, but not quite as we know it; while both sites do have solid information,

LOBBY YOUR MP

You know, you don't just have to sit there and take it. Many MPs have e-mail addresses and some – including Paddy Ashdown – even answer their own mail. With a click, UK Political Links will put you through to figures like Tony Blair and Jack Cunningham but sadly there are no senior Tories represented here. Incidentally, the same site also has links to every Local Government home page, giving you up-to-date information on your area.

What will they find online? What will Peter Snow's swingometer look like in *Active X*?



Women's Rights is packed with statistics. Few have lost their relevance since the disc was published, even though CD's can have trouble remaining relevant.

Background clicking

It seems the political parties have yet to discover multimedia. Indeed, while CD-ROMs will teach you how to play guitar or speak Japanese, they won't tell you much about politics at all. A disc like *Makers of the 20th Century* will explain that "Thatcher's only concession to male-dominated politics was to play the game better than the men who rivalled her" but it won't tell you anything about Harriet Harmon – or even John Major. Equally the *Chronicles of the 20th Century* focuses on America and Big History, hardly the stuff of the provincial British politics of today.

Planet Earth provides quite a good background to the Green debate (that's no longer raging). It quotes John Gummer as saying, "Environmentalists are living in a fantasy world." That might influence your voting one way or another. Obviously, however, this medium is incapable of including details on topics like the latest road battles at Honiton, Devon. And while you'll find mini-skirts in News Multimedia's *Women's Rights* disc, there's nothing on Labour's selection process for female MPs. When it comes to politics, it seems no CD-ROM drive is fast enough to keep up with the news.



PRIVATE EYE

http://electron.rutgers.edu/~gambino/Eye_Net/pehome.html

PROGRESSIVE UNIONIST PARTY

<http://www.pup.org/>

ROCK THE VOTE: THE HOME PAGE

<http://www.rockthevote.org.uk/index.htm>

SCALLYWAG MAGAZINE ARCHIVE

<http://www.xs4all.nl/~emags/scallywag/index.html>

UK-ELECT

<http://ourworld.com.puserve.com/home-pages/timb/>

WELCOME TO GENERAL ELECTION 1997

<http://www.ge97.co.uk/>

WELCOME TO PROSPECT

<http://www.prospect-magazine.co.uk/>

YAHOO! UK & IRELAND

<http://www.yahoo.co.uk/category/government.html>



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THE DAILY MAIL CENTENARY
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New Media,
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Politics isn't just about flag waving you know.



Labour might be leading Britain into the future, but who's winning the race online?

the very act of digging it out seems novel after years of watching slick political broadcasts. Moreover, a cynical Net voter might wonder at the neutrality of their clicks. After all, what's to stop the party collecting statistics on the issues you find interesting, then altering their campaign efforts to suit?

For something different, turn to the Liberal Party's home page. "The Liberal Party cannot afford to spend thousands of pounds on fancy Web design consultants" it boasts. It shows. In fact the site is probably more austere than it needs to be, but at least it concentrates on Liberal policies rather than attacking those of their opponents. Its drabness is particularly apparent if you then turn your head to the Monster Raving Loony Party site. It's full of froth, hats and fluorescence. Monster!

You might not decide which party to root for after perusing the sites, but you'll be certain of one thing – the Monster Raving Loony Party would brighten up Parliament. One look at The House of Commons home page confirms these suspicions. It's a dense and impenetrable affair. Amongst the committee-speak, you'll find riveting facts like how many tonnes of cod we're allowed to catch in the North sea this year (16,500).

Frankly, all the official government pages show is that the Internet will never revolutionise democracy. In reality, the number of people able to wade through this legalese are few, and most trained for years as lawyers.

Of course, the politicians themselves are fairly inscrutable and so another class of experts – the media – further simplifies the work of government, creating snappy summaries like "Up yours Delors!". Here the Internet does make a difference. For instance, *Scallywag* magazine claims it was closed down by the Conservative government – a so-called gateway URL now points to *Scallywag*'s Internet site, changing as it's forced to move. If you like scurrilous and

sleazy stories, it's the site for you. If not, at least it's got a Dilbert cartoon.

More mainstream media comment is on offer at *The Economist*. Heavyweight topics like the dangers of national governments jostling for international finance jostle with vigorous criticisms of the current Tory party – in that it's not right wing enough. Meanwhile, *Prospect* claims to offer content from across the political spectrum, but while intellectually stimulating, it also leans to the right. You might hope *Private Eye* online would at least kick in both directions but it's a limp affair.

The great virtue of the Internet is the voice it gives to the disenfranchised – the quiet ones who come on right at the end of the *News at Ten* like the Natural Law party. If you remember these flying yogis from the last election, you'll be thrilled to discover they've proudly published their *Proven Solutions to the Nations Problems* on the Net. Apparently, 42 scientific studies have shown our ills will be salved by the founding of Transcendental Meditation groups, primming with bald men bouncing up and down the country. Meanwhile, The New

Communists point the finger of blame at the European Union, which they claim is a capitalist ploy to increase the rate of worker exploitation. And as for the capitalists, over at the Critical European Group, they're arguing that the Union will destroy our economic strength.

Europe, then, is sure to be a critical issue in the next election. Whether the need "to ensure the continuation of our own species through a sustainable relationship with planetary ecosystems and the other life forms they contain" – as pushed on the ECO home page – will pull in the voters is another matter. As Euro politics blooms, Green politics withers. At least the World Wide Web saves on the paper otherwise used to print the ephemeral manifestoes of today. After all, URLs don't last forever and nor do General Elections. Enjoy it while you can. (OB)

CREATIVE

3D Blaster

PCI



See What You've Been Missing



If you play games on the PC, you've never seen anything like the Creative Labs 3D Blaster. This breathtaking graphics accelerator takes 3D game

play on PCI systems to a whole new dimension of excitement with imagery so realistic your eyes will be out on stalks.

No more blocky graphics or jerky frames. Instead you can feast your eyes on superb quality, super sharp definition and blinding performance which you can't get with conventional cards.

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the 3D Blaster PCI, and four of these hot titles come in the box – Quake™ shareware, Flight Unlimited™, Battle Arena Toshinden™, and Rebel Moon™. Keep your eyes open for more to come.

3D Blaster PCI combines full screen colour with total 3D realism for much richer, more defined and more hypnotising game play than you've ever experienced before.

Harness it with the awesome Sound Blaster 32 card, and you won't believe your eyes – and ears.

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CREATIVE

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THE GREAT DEBATE: MULTIMEDIA IS DEAD

Is this the end of the multimedia CD-ROM? Two experts have their say.

Three years ago software companies, broadcasters, book publishers and even magazines like PC REVIEW were heralding the dawn of a new age in entertainment and education. This resulted from the arrival of the CD-ROM which, as everyone knows, can hold 650Mb-worth of computer data made up of video, text or graphics. After a bad 1996, however, some think this year will see the concept of CD-ROM multimedia off completely.

YES, IT'S DEAD

In the time that people have taken to grasp the enormous and unfathomable potential of the Internet, multimedia CD-ROM was granted a stay of execution. Recent events such as New Corp's decision to pull the plug on News Multimedia, however, have done little to revive a flagging CD-ROM market, awash with mediocre products hopelessly inept at matching the dynamic nature of the Internet. The reasons for this are all too evident.

Whereas multimedia titles are static, the Internet is dynamic, capable of quenching consumers' insatiable thirst for information as it happens. As the world's largest on-line Internet Service Provider, for instance, AOL ensures that, in addition to access to the WWW, its members receive coverage of the latest news from around the world immediately, accompanied by pictures from Reuters and the Press Association. Likewise, AOL's sport channel covers all the major sporting events in the world within seconds of them taking place with images from Allsport.

For those seeking information about any subject, the World Wide Web can be likened to a

Martin Axford is the Assistant Producer of AOL's Sports Channel.



TV network, with users dictating which 'channels' they want to watch from an endless selection of sites. A vast number allow interaction, and enable users to download game demos, images, shareware programs or play games over the Internet. And it is this worldwide interaction that typifies what being on-line is all about. As well as email there's Internet Relay Chat (IRC) – which affords users the opportunity to surf the Net while chatting real-time to someone on the other side of the world.

Whereas Internet sites featuring a high graphical content once took minutes to download, modems continue to get faster and faster, alleviating that problem. The cost of getting on-line is also very cheap, moreso when you compare the amount of information you can gather for the fraction of the price of a CD-ROM. Parents once put off by the lack of control can now personalise their on-line environment on AOL to deny their youngsters access to the few sites not designed for them, allowing them to explore the Net for educational and informative material instead. With everything that the Internet has to offer, the future looks pretty bleak for multimedia CD-ROM.

NO, IT LIVES ON

The last few months have seen the UK multimedia industry awash with red ink and bad news. Many industry commentators are saying that 1997 will see many players either pulling out of the industry or falling by the wayside.

However rather than seeing 97 as the year in which the multimedia industry dies, I think we should see it as the year in which a Darwinian struggle takes place. This fight for survival will, I believe, leave the industry in a much healthier state with fewer but much stronger players, producing a higher standard of entertainment for the consumer.

The stage is already set with new technologies such as MMX and DVD allowing the multimedia industry to compete with television. Full screen MPEG2 video will become commonplace, DVD will deliver enormous amounts of high quality video, and at last the multimedia industry will start to deliver the extravagant claims made for it over the last few years. Hybrid CD-ROMs will also grow in popularity, providing the best of both CD-ROM and the Internet. Already the users of The Learning Company's title *Compton's Interactive Encyclopedia 97* use the

CD-ROM for its core information, and if they want to know more they can then use the hot-links on it to go to relevant Web sites for up-dated or more in-depth information.

To add to my feelings for The Learning Company and the industry as a whole, I today read a press release in which the respected research group IDC predicts that the world-wide PC consumer market will grow in 1997, and that the games and entertainment market will grow the strongest with a 17.6 per cent growth rate. Mary Loffredo Wardley, consumer software research manager expects to see "steady growth across the three major consumer segments, games/entertainment, education and edutainment, and home productivity."

I support the bullishness of IDC, and expect that 1997 will be the year that multimedia leaves its difficult adolescence and starts to grow up. Death is still a long, long way off for multimedia.



Charles Tarlton is the managing director of the Learning Company, whose *Compton's Encyclopedia* and *Atlas* discs are reviewed on pages 82 and 83.



Part two: From super computer to semiconductors

THE HISTORY OF THE PC

The 50s and 60s changed the way computers were built and used, and saw their introduction into society at large.

The tail-end of the 1940s had witnessed the arrival of machines like Manchester Universities Mark I and Cambridge's EDSAC, which, with their ability to run stored programs, were undeniably the first computers. In the 1950s, the creation of individual machines continued. The most important was the UNIVAC, created for the US Census Bureau. By 1953 its name was synonymous with computer, like Xerox for photocopiers. UNIVAC was made famous by American TV, when, during a pre-election broadcast, the presenter continually asked it, "UNIVAC, tell us what you think?" (Ironically, the station officials were too scared to broadcast its predictions.)

The UNIVAC was based on the 1940s vacuum technology, but hardware was changing fast. The first transistor-based computers – called Second Generation computers – arrived in 1956. They were smaller, faster, and more reliable. Moreover,



Transistors were originally invented in 1948, but it took nearly ten years to be incorporated into computers.

Random Access Memory (RAM) was invented in 1951 for the US Air Force's Whirlwind simulator, and in 1957 IBM offered the first alternative to magnetic tape storage with its 305 RAMAC disc based memory system.

The next big change made computers even smaller. In 1958, Jack Kilby, an engineer at Texas Instruments, tested his idea of placing transistors, resistors and capacitors on one chip. Soon

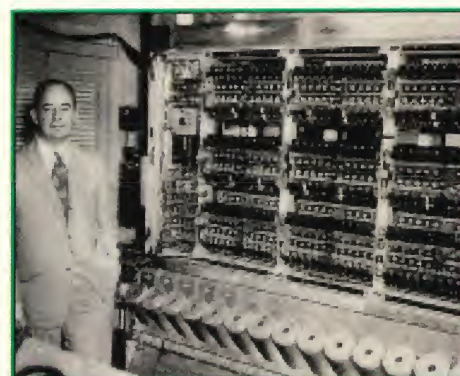
scientists were able to integrate many more components, leading to invention of the semiconductor. By the mid 60s, all new machines were based on Integrated Circuits (ICs). They were smaller, cheaper and termed Third Generation machines.

Operating Systems

Third Generation computers featured operating systems that could running several programs simultaneously. These systems were the culmination of many years research on computer languages. In 1952, Grace Hopper had proposed the compiler, which took a high-level language program and converted it into machine instructions. In 1954, FORTRAN was invented for scientists. The business language COBOL followed in 1960. BASIC, devised in 1964, was intended for students, but soon became the favoured language. And with the standardisation of ASCII text in 1963, computers could exchange data.

What were computers used for? Early second-generation supercomputers were big, expensive and too powerful for business. Instead they were

commissioned for specific tasks. 1958 saw computerised air traffic control in New Jersey, computerised banking arrived in 1959 with the ERMA system and the first on-line ticket booking system was created for American Airlines by IBM in 1964. By 1965, most big firms processed their financial information on computer – most often on the IBM 1401, the digital equivalent of Ford's Model T. At this time IBM also launch its System/360 series.



Jon von Neuman worked on many early computer projects. His stored program concept underpins modern computing.

One of the first families of compatible computers (and designed to for almost any situation), the series changed the way people thought about them.

For some, the computers of the late 1960s were still inadequate. Around this time Douglas Engelbart actually conceived much of the modern PC, including Windows, hypertext, video conferencing and even the mouse, but he had to wait 15 years to see his inventions realised. Other visionaries included Arthur C. Clark, whose 1968 sci-fi thriller starred HAL (a cipher of IBM), based around an early unrealised fear of artificial intelligence. And in 1969, the first lines of ARPANet were laid. The world's first computer network, it would eventually become the Internet of today. But before this could happen, computers had to become personal... (OB)



Despite discarding the enormous vacuum tubes of their predecessors, second generation computers could still fill a room.

1951-1970



THE MAIL

Basking in praise and ducking your criticisms, our newer, nimbler editor answers your questions and prints your comments on PC REVIEW...

CADDING ABOUT

Dear Sir,
Seeing that your Christmas 1996 edition contained a 'Full working' version of *TurboCad*, I duly paid my £4.99. Having had little time over Christmas to install the software, it was not until the middle of January that I finally did so. To my amazement, the CD only contained a demo version and would not allow saving. On reflection I feel that the literature was – and is – misleading in the least, if not an infringement of the Trade Descriptions Act. I eagerly await your reply.
LJ Speake, Leicestershire

Yes. We took more than a few calls on that one. Trouble is, lots of people installed the software before clicking the README button from the *TurboCad* screen in the CD REVIEW interface. Doing so would have revealed the code that is required to unlock the fully-working version during installation. That code is D080A. (Oh, and those are zeros, not 'o's'.)

LOGO A GO-GO

Dear PC REVIEW,
I am sitting here in front of my PC and I have nothing to do so I thought that I might make a 3D logo for my favourite magazine. It's nothing really special; just a video file I've made using 3D Logo Generator.

I have been looking over the letters pages from the most recent issues and there have been a number on one subject: *Quake*. As much as I enjoy reading your magazine, I have

to say that you have been drooling over *Quake* for a number of months now and while I must admit that multiplayer is brilliant, in single-player mode it's really disappointing.

David Fox, Belfast

Our mouths are closed, and so is the subject. No more talk of *Quake*. Instead, our favourite game at the moment is MDK, which is game of the month over on page 41. Plus, the demo's on CD REVIEW. To see David's logo, run the PCREVIEW.AVI file in the Pic 'n' Mix section of our CD-ROM.

DOING IT MANUALLY

Dear Sir,
I am writing to see if your readers would be interested in purchasing a *Tomb Raider* manual written by myself. I must congratulate everyone involved with *Tomb Raider* for never was an adventure so brilliantly put together as this one. To complete the journey is absolutely mind boggling. I hope Lara Croft will be going on many more adventures soon.

B Willets, Manchester

Anyone interested in getting this playing guide should send £7.50 to B Willets at 11 Godlee Drive, Swinton, Manchester M27 0JD. Remember to include your postal address.

AD LEGITIMACY

Dear Sir,
I bought January's issue of PC REVIEW and thought it was an excellent read. I noticed there are very few ads in the magazine, but one of them is for a mail order company on page 124. I was wondering if you as Editor can vouch for this company's products – are they real, etc?
Jimmy Burns

Yes, the company whose ad you refer to is legit and we've had no complaints about them. All the products they list are real as well. In fact, we check the credit and reputations of all our advertisers. If, on the off chance, you do have a problem with a particular company, please be sure and let us know.

INLAY'S NOT OK

Dear Sir,
I bought the February issue of PC REVIEW, eagerly awaiting the sweet amusement of the demos, only to find, to my horror, that the key listings were those belonging to the issue before last. Am I the only unfortunate person this has happened to?
Nick Dawson, via Internet

A collective 'oops' from all involved. Anyone who needs the key commands for the games on last issue's CD REVIEW will find them in a file called KEYS.TXT in the root directory on CD REVIEW this month.



If you have a point to make, write it down. Send it to us at the address shown above, or email us on pcreview@futurenet.co.uk.

Letter of the month

MORE ADVICE ON NETWORK GAMING

After several failed attempts at head-to-head gaming on two PCs, I discovered that what I thought was a null modem cable was in fact a modem cable. A quick soldering job and several games of *Warcraft 2* later, and we are hooked. The next stage is of course multiplayer over a network, though not many people have free access to a network, and most flinch at the thought of escalating phone bills due to on-line gaming. So one of the few options left is weekend networks with people transporting their machines to friend's houses or possibly rented

church halls and setting up a network for a day or maybe two. Personally I am only waiting for the wife's firm to upgrade its network so that I can get some cheap cards and cables.

What I – and probably others – need is some help setting the network up so perhaps a couple of articles on the subject and reviews of appropriate hardware in your illustrious organ would be in order. I did see on the Web a product called *Gamenet* that runs on parallel port connectors.
Carl Grigg, via CompuServe

Increasingly, multiplayer modes are the best way to experience games, and thank you for your suggestions. Over the coming months we're going to try and squeeze in some practical features on how avid gamers might attempt to set up their own networks and in a couple of months' time, watch for a major feature on on-line gaming. We've kicked off this month with a tutorial on how to play head to head games using two PCs and a null modem cable. That starts on page 112.

NEXT MONTH IN PC REVIEW

The inside story on Digital Versatile Disc technology from Toshiba. Plus – win your own DVD drive.

DVD

Space Station Simulator

Huge review and demo of the first major MMX CD release.

Buyer's Guide

Which colour printer? Eight hot new models tried and tested.

Speed up your PC

Push your PC to the limit for that extra bit of speed. For free!



How to make multimedia

Part II: Adding sounds and interactivity to your project.

How to upgrade to MMX

We show you how to turn your PC into an MMX monster.

Win an MMX Overdrive

A chance to get your hands on Intel's latest powerhouse chip.

PLUS...

More clipmedia

We've secured another 100 pieces of clip media from IMSI MasterClips on the coverdisc. Images, fonts, sounds and videos – don't miss it!

Descent to Undermountain

We bring you the exclusive demo of this mystical 3D game.

Science 2

We've also got an exclusive demo of DK's *Encyclopedia of Science 2* for you to see why we've raved about it this issue (review on page 79).

Exclusive to CD REVIEW
Full version of Simply 3D

Plus a 100-page book on how to use it

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IN-TO-THE-NET contains a vast array of utilities to get you connected and enhance your use of the Internet and WWW with software for Web Browsing, Mail, FTP, Chat, Web Page Creation, Browser Plugins, Server Suites, and WWW Utilities. We have provided the Microsoft Internet Starter Kit including Internet Explorer versions 2 and 3 with Mail, News, Active Movie and VRML addons. Additionally there is a library of WWW page creation resources such as buttons, textures, backgrounds, rulers, VRML, AVIs and themes. There is also a selection of WWW sites containing valuable information on the Internet and HTML that you can browse directly from the CD, no online charges.

£14.99
Wondering what all this World Wide Web is all about, worried about expensive connection and telephone bills, concerned that it may not be for you. Well check it out without the connection or telephone charges with 'Out-of-the-Net'. This compact disc contains the contents of actual WWW sites for you to browse with the PC browsers provided, no online costs at all. It is all included ready to run directly from the compact disc. The CD acts as an pseudo Internet provider with the sites readily available on the compact disc. There is a variety of sites and subjects covered to give an good feel for the WWW whilst you browse for free.



FREE WITH ALL ORDERS OVER £25.00

ARTWORX CD (PC)

PLEASE REQUEST YOUR FREE CD AS IT IS NOT AUTOMATICALLY SHIPPED



£19.95
Women of the Web is an exciting new multimedia experience bringing all the latest Internet technology to the home. This title is compiled in HTML format, using pictures, text files, animations and sound samples. With over 450 megs of information on over 250 of the world's most beautiful and famous women. The easy point and click interface makes the whole CD-ROM accessible to both beginners and experts alike. With full colour images and video this compact disc is sure to please.

WOMEN OF THE WEB



£29.95
4 CD's
WWW Windows95.com the Internet's premier site for Windows 95 related files with over 2 million hits a day. Now you can get the best of this site on compact disc. This DOUBLE CD set contains the very best from the site up to December 1996, over 1.2 gigs. The Windows 95.com Shareware CD contains the same interface as the site and can be browsed with Internet Explorer, supplied or any web browser. Popular sections include Web Browsers, Graphics Utilities, Windows 95 Desktop Themes, Server Software, Anti Virus & Disk Utilities, Screen Savers & Backgrounds, FTP Clients, Cursors & Icons, Games, Programming Files, Comics and Chat Clients. Video and much more.

WINDOWS 95.COM

The music and sounds files can be auditioned from an easy to use interface for both a PC & Amiga. Included are 4,400+ modules, 400 extra large modules (over 300k each) 795 Screamertraxer modules, 1,000+ categorised midi files, 4240 IFF samples, 620 categorised WAV samples, 1,000+ Walkabout Instrument samples in WAV & IFF formats, 100's of utilities for Amiga and as a bonus the complete MidiCraft collection of Midi files.

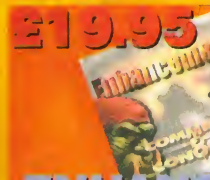


SOUNDS TERRIFIC 2



£19.95
Retro Gold contains Commodore 64 and Spectrum emulators for the PC along with 3,000 Spectrum games and 1,200 C64 games ready to load from the CD. The emulators can be installed to hard drive and the games accessed directly. Get all nostalgic with Retro Gold

RETRO GOLD



£19.95
Containing shareware versions, new levels, patches, updates & editors for many great games including War Craft 2, Dark Forces, Duke Nukem 3D, Doom, Rise of the Triads, Heretic, Doom 2, Descent, Hexen, Sim City and many more. Also includes demo versions of many games. Includes many new goodies such as the latest cheats and tricks. Sleepless nights await you.

ENHANCEMENTS CD

Imagine PD 3D consists of thousands of Imagine 3D objects created by it's Amiga and PC users from around the world using Imagine 1.0 up to Imagine 4.0. The objects fall into many different categories including Anatomy, Animals, Aviation, Botany, Buildings, Computers, Fonts, Furniture, Household, Kitchen, Land, Logos, Misc., Music, Phones, Robots, Ships, Space, sports, Video, Vehicles, Weapons etc. Remove the drapery out of 3D rendering and see how the artists do it.



IMAGINE PD 3D



Anatomy	Computer	Land	Space
Animals	D & D	Legos	Sports
Aviation	Dr Who	Misc	Star Trek
Botany	Food	Morph	Star Wars
Building	Fruit	Novelty	Technology
Clocks	Furniture	Organic	Tools
	Household	Phones	Vehicles
	Instrument	Relicos	Video
	Kitchen	Sci-Fi	Vista
	Lamps	Ships	Weapons

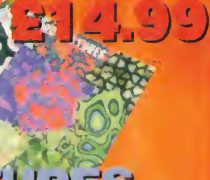
3D CD 1 OBJECTS



£19.95
The Multimedia Backdrops CD contains 100 backdrops designed for Desktop Video and Multimedia work in the IFF24, TARGA and TIFF file formats in NTSC (752x480) and PAL (768x576) resolutions. The INDEX provides thumbnail renderings of all the backdrops for previewing images.

MULTIMEDIA BACKDROPS

Featuring a massive one thousand and seventy eight 256 pixel textures. Each detailed texture file can be tessellated to create images with absolute seamless edge to edge matching. Superb for wrapping around any complex object perfectly or adding instant backdrops for WWW pages etc. Finding the right texture is easy with a 24 page colour index booklet displaying all of the



WEIRD TEXTURES



Containing over 600 megs of raytraced images in 256 colours AGA IFF & GIF formats. A GUI front end enables all of the images to be viewed. Also great graphics utilities for both Amiga and PC. All of the images have thumbnail versions in indexes of each directory. Over 800 images for PC and the Amiga.

3D CD 1 IMAGES



£19.95
The very best from Light Rom 1, 2 and 3 with over 6,000 Lightwave objects and scene files. Light Rom Gold was created for those who did not purchase Light Rom 3. The material on Light Rom Gold is compatible with all versions of Lightwave on all platforms. All of the Lightwave objects and scene files are represented with thumbnail

LIGHT ROM GOLD

The Dem Rom CD contains over 1,000 digital elevation maps (DEMs) from the USGS. Along with these digital elevation maps are thumbnail renderings of their topographical maps in Jpeg format for easy previewing. Dem Rom originally appeared on Light Rom 3. The digital elevation maps can be used with any program that accepts the DEM format such as Vista Pro, Scenery Animator or World Construction Set to create beautiful still images or fantastic flights. All DEMs are royalty free.

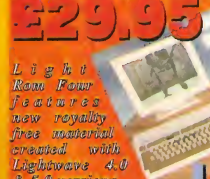


DEM ROM



Hundreds of BMP full colour images fully categorised, indexed and provided with thumbnail representations. All of the images are produced using computers and have been created by top computer artists. A huge collection of colour images that make superb colour clip-art or backdrops to your own work.

ARTWORX CD



£29.95
LIGHT-ROM 4, a 2 CD-ROM set for the Amiga, Mac, Windows / NT features all new Lightwave objects and scene files. In addition there is a bonus CD-ROM of 3,000 Jpeg Textures, see below. LIGHT-ROM 4 also includes a collection scene files by Alan Chan. This set contains all new material and is an absolutely superb resource.

LIGHT ROM 4

The 3,000 Jpeg Textures CD contains over 3,000 textures in the Jpeg format. There are thumbnail renderings of every texture for easy previewing. The textures cover all categories including Brick, Bump Maps, Carpet, Cloth, Fabric, Formica, Granite, Greenery, Images, Marble, Organic, Rock, Skin, Stone, Stucco, Tiles and Wood. Realistic high quality textures for a variety of uses are provided.



3000 JPEG TEXTURES



Sci-Fi Sensations a double CD science fiction extravaganza now in it's second pressing and updated to version 2. Contains images, games, animations, clip-art, fonts, information, wallpaper, stories, music, samples, 3D objects, game GFX, tools, FLI, FLC, quicktime, AVI and MPEG files, all with a science fiction theme.

SCI-FI SENSATIONS 2



£14.99
A superb collection of games for the PC with Blackjack, Cribbage, Gin Rummy, Video Poker, many Board Games, Word Games, Simulated Casino, Chess, Lottery, Mahjongg, Puzzles, Slot Machines, Solitaire and many more.

CARD GAMES

true 3D consists of thousands of true Space 3D objects created by it's PC users from around the world using various 3D modelling programs. The objects fall into many different categories including Anatomy, Animals, Aviation, Botany, Buildings, Computers, Fonts, Furniture, Household, Kitchen, Land, Logos, Misc., Music, Phones, Robots, Ships, Space, sports, Video, Vehicles, Weapons etc. Remove the drapery out of 3D rendering and see how the artists do it.



true 3D CD



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Over 3,000 educational applications for ages 3+ with a superb easy to use menu system that makes selection and installation of the programs easy. From toddler to teacher this CD has the enough to keep every one interested.

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Both volumes contain hundreds of programs, source code, VBX & controls for Visual Basic, C, C++, ADA, Assembler, Basic and Pascal. Sim's 2 includes source code and files for Visual Basic, Access, Excell, Paradox and WinWord along with a huge amount of tools. A new fabulous programmers resource



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3D REVOLUTION!

The 3D revolution has shifted up a gear and games programmers finally have the technology at their disposal to leave that old 2D frame of mind behind. To get the best out of tomorrow's PC games players will need a 3D card and there's no question about it. We explain why, look at the hottest fastlane 3D games, review eight great 3D cards, and tell you which one to buy.

**7-PAGE
GUIDE**

The definitive
word on 3D
graphics

You've seen the games – *Quake*, *Tomb Raider*, *F1GP2*. You've heard the strange words – phong shading, bi-linear filtering, mip mapping. And you've even considered buying the cards – the Righteous 3D, the 3D Blaster PCI, the Matrox Mystique. But it's still too easy to be scared off by the whole concept of 3D graphics cards. Over the next few pages we're going to fix that. We'll tell you how 3D graphics are programmed and how your PC displays them. We'll explode the jargon, explain why Direct X means now is the time to consider a 3D card and tell you which one to buy. And we'll look at some of the sensational games you'll soon be playing. All you have to do is enjoy the view.

In the Beginning

Why are 3D graphics cards suddenly neces-

sary?

After all, haven't we been getting on perfectly well without them? True, when Earth was first invaded by the *Space Invaders* in the late 70s, we were wowed. But don't *Space Invaders* and its children seem rather, well, flat? Like all the old classics, *Space Invaders* was a two dimensional (2D) game. You can go up, down, left and right but you can't move into or out of the screen.

2D games present an impossibly thin world. True, programmers have developed various tricks to disguise this, like the isometric perspective of *Command &*

Conquer or the chess-board landscape of *Space Harrier*. But nothing compares to the realism of true 3D games.

Were early game designers congenital idiots? No – as soon as they got the computing power, they began to create 3D games. Unfortunately running a 3D game takes massive amounts of computing muscle. With 2D games, all the machine has to do is move the graphical objects, say the spaceships, from one point on screen to another and then update the background. In contrast, every time the point of view changes in a 3D game, the whole visible world must be regenerated. Some objects will become apparent, others disappear from view, and angles and shadows will change.

This is why the first 3D games were so ▶



Graphics in the fast lane with Psygnosis



Formula 1 on the PC actually outperforms the PlayStation version. Filtered textures and better scenery are two obvious improvements.

With *Wipeout*, Psygnosis promoted the PlayStation to the masses. Now its chart-smashing *Formula 1* looks set to do the same for 3D accelerators. In fact, *Formula 1* won't even work on some PCs. "An un-accelerated mid-range PC couldn't handle the level of polygon detail apparent on the Playstation," says Martin Chudley, head of Bizarre Creations, which is developing *F1* for the PC. Even more controversially, he's not convinced Direct 3D has all the answers either. "Developing games to fully exploit 3D cards which span three distinct generations will be difficult," says Chudley. "To get the most out of a card you need specific low level coding. And you need to balance geometry with feature usage at the world design stage."

Psygnosis wants to be seen to push PC games to the limit.



3D REVOLUTION!



► simple. *Elite*, for example, was a space game where you flew a ship through a 3D universe. The technology was very primitive — only an occasional line-drawn asteroid for scenery, and a spacecraft built from lines (called vector outlines or a wireframe).

The Evolution of 3D Graphics

The next development was solid 3D objects. This involves building objects from polygons, then colouring each polygon. Soon after, PCs became powerful enough to handle object texturing. Instead of simply colouring the polygons, they are filled with a bitmap representing a texture. This makes walls that look like stone, for example. *Doom*,

Wolfenstein and *Magic Carpet* were early texture-mapped PC games.

Since then, yet another generation has evolved, typified by the likes of *Quake*. The textured polygons of the earlier games are scaled intelligently as you change your distance from them. Accurate lighting and depth-cueing adds another level of realism.

Virtually overnight, most great games are in 3D. This is good, since they're more realistic, but also bad, because it makes huge demands on your PC's processor (CPU). Without extra hardware, games like *Tomb Raider* depend entirely on your CPU to generate the 3D landscapes. The slower the CPU, the slower the world is animated.

Increasing the detail makes further demands on the processor.

Over the last year, it's become clear that even Intel's continual Pentium upgrades can't keep pace with the leading-edge games. A solution was clearly needed, and it's here, in the shape dedicated 3D processors and Microsoft's Direct 3D API.

Microsoft megalomania?

With Windows 95, Microsoft created a new environment which can run almost any program. It's least effective at running games, which are very demanding of both memory and processor cycles. Microsoft's solution is a universal suite of APIs called Direct X,



MONSTER 3D

Its earlier 3D cards have been very hit and miss, but with the Monster 3D, Diamond has finally got it right. Here's a dedicated 3D card, and it uses the same blisteringly fast

3Dfx Voodoo chipset found in the Righteous 3D. Though it seems a fraction slower than the Righteous, the Monster comes with better drivers that support a greater range of resolutions and refresh rates. The card comes with 4Mb of EDO RAM and 20 games and demos, including a trial version of *Tomb Raider*. Nice price too.



DEVELOPER	SUPPLIER	CONTACT	PRICE
Diamond	Diamond	01189 444400	£196

Minimum system: 486 DX, 8Mb, PCI 2 slot

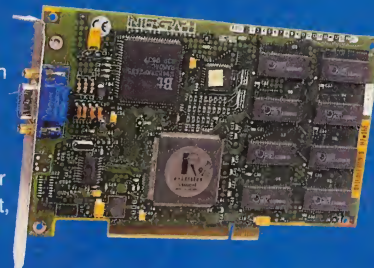
Verdict: Although the Monster 3D shares the same stunning performance as the Righteous, it costs considerably less.



REACTOR

Intergraph is best known for its professional 3D cards, so you would reasonably expect it to produce a good card for the home market. In fact, the Reactor was one of the worst all-round

performers, which is a surprise, especially as it uses the Verite 1000 3D chip set. It's a combined card with the worst 2D performance in the round-up. It comes with 4Mb of RAM, yet only supports resolutions of up to 1280x1024. Ironically, it comes with a five year warranty, but as it's already been thoroughly superseded, that's nothing more than window dressing.



DEVELOPER	SUPPLIER	CONTACT	PRICE
Intergraph	Direction Tech	01483 454400	£99.95 (4Mb)

Minimum system: 486 DX2 66, 8Mb, PCI slot, Windows 95

Verdict: There's no danger of a meltdown in this Reactor. At this speed, it's strictly yesterday's news.



EF2000

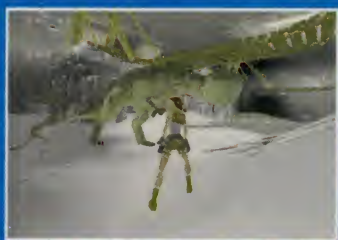
It's no surprise that Digital Image Design has been quick to support the new wave of accelerator chips. **EF2000 Graphics+** is specially enhanced for both the Rendition and 3DFX chipsets and has sharp, high resolution graphics. "It offers the most convincing fog and smoke effects ever seen on a PC", says a spokesman. "Better rocket plumes, distance fade and explosions – you'll feel you're there!"

Now you too can feel the thrill and jaw-clenching fear of flying a jet fighter.



which programmers can use to simplify coding. For games programmers, the most important elements are Direct Draw, Direct Input, Direct Sound and Direct 3D.

Every graphics card has its own drivers. Before Direct X, the CPU would generate an image which could be sent via the software drivers to the graphics card for display. Unfortunately, every card had different capabilities, and images that worked well on one card might not



A free patch for 3DFX owners upgrades Tomb Raider to almost cinematic levels of loveliness.

even be displayed on another. The VESA standard was introduced to try and universalise the cards, but there remained many non-VESA standard cards. Supporting them was costly to the programmers, who needed to alter code for every card. It also disappointed people who owned better graphics cards, as the enhanced features weren't being used.

Direct X is Microsoft's attempt to solve this, by simplifying the process of creating

DON'T TALK TECHNICAL TO ME!



Alpha Blending

Advanced transparency that uses a separate monochrome 'alpha channel' to calculate the transparency level of a foreground bitmap over the background bitmap.

Anti-Aliasing – Smooths jagged lines and curves by adding pixels of a colour midway between the background and line on which it's drawn.

Clipping – The process of removing the parts of an image that fall outside the viewport.

Depth Cuing – Gives the impression of distance by fading colours according to their distance from the viewpoint.

Direct 3D – A Microsoft API which simplifies the task of writing 3D routines for multiple graphic cards.

Double Buffering – Display technique using two memory buffers to reduce apparent screen flicker. One frame of animation is drawn in one buffer out of sight of the viewer,

whilst the other is displayed. They are then swapped and the process continues.

Filtering (Bi- and Tri-Linear) – A method of scaling texture map pixels as you get closer to them. Instead of just making the pixel larger (by replication), adjacent pixels are also considered to produce interpolated (calculated) pixels which look more natural.

Flat Shading – Colours a polygon with a single shade.

Gouraud Shading – Colours a polygon by assigning a colour to each edge, blending smoothly between the edges to soften and round them.

Hidden Line Removal – When a 3D object is created, all lines representing it are drawn. Hidden line removal deletes those lines that are not 'visible' because other parts of the shape are obscuring it.

Open GL – A similar concept to Direct 3D, but more comprehensive, and designed for professional use. Primarily used for providing fast 3D previews.

Perspective Correction – Modifies a texture map to show the angle at which it's viewed.

Phong Shading – By far the slowest and most realistic shading, it calculates the light intensity of every single pixel on a polygon, rather than just applying graduated fills based on the light at its edges.

Polygon – The 2D shapes from which 3D objects are constructed.

Texture Map – A bitmap which is wrapped around a 3D object.

Viewport – A window onto a 3D scene, it's the part of the scene that's visible from the viewer's perspective.

Wireframe – A fast method of displaying a 3D object using plain lines.

Z-Buffering – Stores information about an object's position in the Z-plane (representing depth), so the computer can calculate how far away it is, and which objects are behind and in front of it.

graphics and removing the need to support specific cards. It's a set of software routines that are called directly from within the program. It's card independent, so the programmer can write just a single piece of Direct X code and leave it to manufacturers to make their cards Direct X compatible.

But what about 3D?

Direct 3D is part of the Direct X APIs. It's a set of instructions and protocols for generating 3D images. These instructions may be executed by the CPU or, with a Direct 3D compatible graphics card, the instructions can be farmed out to the 3D processor.

Not every graphics card can execute ►

APOCALYPSE

The Apocalypse is a dedicated 3D accelerator, and it's the only one that communicates directly with your graphics card via the PCI bus, rather than using fly leads or internal VESA feature connectors. The idea's great, but might lead to serious problems if your motherboard isn't modern enough or is not optimally configured. The Apocalypse doesn't like Matrox graphics cards. Nevertheless, when we did get it running, its performance was only exceeded by the Voodoo-based cards. There was one major flaw – the fact that it doesn't support bi- or tri-linear filtering – which mars graphical quality and performance.



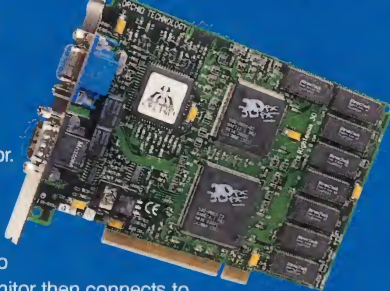
DEVELOPER	SUPPLIER	CONTACT	PRICE
Video Logic	Video Logic	01923 260511	£186.83

Minimum system: P100, 16Mb, 2Mb Direct Draw graphics card, CD-ROM
Verdict: The Apocalypse is fast, particularly with the right PC. The absence of filtering is disappointing.



RIGHTEOUS 3D

Based upon the 3DFX Voodoo chipset, the Righteous 3D is a dedicated 3D accelerator. It plugs into a PCI slot, and connects to your existing via an external fly lead which plugs into the VGA plug. Your monitor then connects to an output on the Righteous. This is quite simply the fastest card in the round up, with the best range of features. Admittedly, Number 9's 772 shifts raw polygons fractionally faster, but its performance is nowhere near as good overall. The card comes with seven games and playable demos, and needless to say, it supports Direct 3D.



DEVELOPER	SUPPLIER	CONTACT	PRICE
Orchid	Orchid	01256 817722	£286 (4Mb)

Minimum system: P90, 8Mb, PCI 2.0 slot, DOS 6, VGA, CD-ROM
Verdict: Put on your asbestos gloves, before you plug the Righteous 3D in – it's a real scorcher!





3D ON THE MOVE
1997 looks like being a great year for 3D card manufacturers. In the medium term though, any wide-spread adoption of 3D technology will probably result in 3D card chips migrating to the motherboard (as happened with soundcards and some graphics cards). This will mean cheaper 3D for us and a massive installed base for developers, which can't be bad. And it leaves card manufacturers free to devise even more thrilling new technology...



The 3DFX much improves the look of Sierra's *Cyber Gladiators*, but it can't really improve the gameplay.



With *Apocalypse 3D* support, Eidos Interactive's upcoming *Apache AH64* looks like a military flight simulator.



Here's *POD* without the Righteous 3D card...

The hard or soft option

UBI Soft got lots of exposure for *POD* when it was showcased by Intel for its MMX capabilities. Now it's turning its attention to accelerator cards. We saw this slick racing game running on three machines – a P200 machine, a P200 with a Righteous 3D card and a P120, again with the 3D card. All three were MMX enhanced and had 32Mb of RAM.

POD with a 3D card was a revelation. Textures stayed smooth, cars were reflected on the track walls (courtesy of MMX), and the tracks flew by. On the P200 without a 3D card, the frame rate appeared slower, pop-ups were evident in the distance and the textures were

much blockier. Further proof of the 3D card's processing role came when *POD* was run on the Righteous-equipped P120. Slightly slower frame rate aside, there was no visible difference between the P200 and the P120 with the same card. The entry level machine for *POD* will probably be a P120 (P60 with card).

So, despite *POD*'s close links with MMX, a 3D card is clearly required to get the best out of the game. "From a gamer's point of view, take the card over an MMX upgrade any day," James Sutherland, a technical assistant at UBI Soft says. "The 3DFX is stunning, it does better mip-mapping than the N64."



...and here it is accelerated. Notice how smooth the track is, even up close.

every Direct 3D instruction. Specifically, some can't handle advanced techniques like Phong shading, transparency, fog or Z-buffering. However – and this is the beauty of Direct 3D – on running, Direct 3D checks your graphics card to find out exactly what it's capable of, then adapts itself accordingly. If your card can't support a required Direct 3D feature, it will be emulated (much more slowly) in software, or else disabled entirely.

Note that the current version of Direct 3D doesn't make a jot of difference unless your 3D card has drivers which supports it.

The MMX connection

Further benefits come from MMX, Intel's new

enhanced Pentium processor. Multimedia data is directly catered for under MMX by 57 new processor instructions. An MMX Pentium runs multimedia programs up to 60 per cent faster than a standard Pentium. Improvements in the overall processor architecture means MMX processors run even non-MMX enhanced programs between 10 and 20 per cent faster.

Because Direct 3D is a software-based API, you'll see general performance gains of



An OpenGL patch for *Quake* is available from www.idsoftware.com.

up to 20 per cent on an MMX processor. But when Microsoft releases Direct X version 5, which is MMX compliant, that figure should rise considerably. However, MMX processors don't have native support for the every Direct 3D command, so while MMX is faster than nothing, it can't compete with

dedicated 3D processors. If you have an MMX processor and a graphics card though, they will work together to provide even better performance.

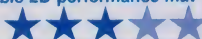
9FX REALITY

If 2D performance is as important to you as 3D, the Reality 772 is worth a look. It uses the VIRGE VX 3D processor to deliver good all round performance. Although the other VIRGE-based card has twice as much memory with 8Mb, this one still manages to beat its 2D performance, and equal its 3D. In fact, the 772 yielded the fastest rate for polygon rendering, although its other abilities are less spectacular. The *Mystique* is certainly faster in both areas, but it lacks any kind of filtering, so on balance this is possibly a better bet.



DEVELOPER	SUPPLIER	CONTACT	PRICE
Number 9	Number 9	01707 898926	£199

Minimum system: 486, 4Mb, PCI, 3Mb hard disk, Windows 3.1
Verdict: It may not be a superstar, but if reasonable 2D performance matters to you, the Reality 772 is a good choice.



VELOCITY 3D

Although the packaging proudly proclaims 4Mb of high-bandwidth dual-ported EDO VRAM plus 4Mb of EDO DRAM for even faster 3D acceleration, the truth is that the Velocity is slower than the Reality 772 which uses the same chip set. It's only a tiny difference in terms of 3D performance, but it's at least 15 per cent slower for 2D. In fact, despite all that RAM, it's the second slowest card in our round up. One advantage, though, is that you can use high resolutions with lots of colours – in fact, you can go up to 1600x1200, and even in 24-bit colour, you can go as high as 1280x1024.



DEVELOPER	SUPPLIER	CONTACT	PRICE
STB Systems	STB Systems	0181 897 1003	£295

Minimum system: P90, 8Mb, PCI slot, Windows 95
Verdict: Although the Velocity is not a specialist 3D card, it's well suited to hi-res 2D work and costs less than the 772.



WIPED OUT

With a 3D card, the PC version of *Wipeout 2097* knocks the PlayStation into a hat. It's got twice the resolution (640x 80 on the PC) as well as perspective-corrected textures. Rather than supporting specific cards, *WipeOut 2097* will be Direct 3D compatible, and should be out in summer. It could be the best racing game the PC's ever seen.



As well as its Direct 3D and MMX support, Psygnosis has re-written the *Wipeout Code* to take advantage of the Pentium's floating point calculation capabilities.

So why are 3D cards so special?

3D cards are powerful because they're dedicated to manipulating 3D objects. Just as an MMX Pentium has specific commands for handling multimedia, 3D processors have unique ones for creating 3D scenes. The commands are specific to each family of 3D processors (although graphics cards from different manufacturers frequently use the same 3D chip, licensed from a third party 3D hardware specialist.) If programmers want to, they can write programs that don't use Direct 3D at all. However, while this has some benefits, it does mean programs written for one card won't work on another.

When the specification for Direct 3D was

still being finalised, this is exactly what happened. Every manufacturer wanted the best games for its card, and they paid software developers to tailor their games for them. Ultimately, this brought the 3D card market into disrepute, since no card could boast widespread support from the software community. It's this that makes Direct 3D so important. Hopefully, whichever card you buy now will give you better 3D games performance, provided the game supports Direct 3D.

Play your cards right

There are two types of 3D graphics accelerators. Dedicated 3D cards work in conjunction

Ram on more RAM

To get the best out of your 3D card, you'll need 4Mb of on-board RAM. A 16-bit screen at a resolution of 640x480 requires 600K of memory. Therefore double-buffering the screen takes up 1200K. So far so good. But many chips now support Z buffering. This stores a depth (Z) value for each pixel, and determines whether pixels from a newly drawn polygon are in front of or behind the currently stored pixel. Again, for the same screen, the Z buffer will take 600K, making 1800K in total. While there might seem to be just enough space to run a fully Z buffered game, the configuration of graphic memory makes it impossible. To run Z buffered games with 2Mb, the screen resolution must be reduced.

Texture maps are also stored in video memory. Textures can be swapped between video and main memory, but usually only between frames. Some cards support texture map suppression, but most require uncompressed 16-bit texture maps, which might take up 2Mb of video RAM. Therefore, a 2Mb card will see textures being reduced by a factor of two or more, further degrading the appearance. In summary, you need 4Mb of RAM to get the best out of your card.

with your existing 2D graphics card, while combined cards that have both 2D and 3D processors on the same board. Some dedicated cards connect to your existing graphics card via a VESA feature connector, so be sure to check if your current 2D card has one of these.

One downside to combined cards is that the performance of the two areas is often mismatched. There's no point having a lightning fast 3D accelerator if the 2D hardware can't display the frames quickly enough.

The beauty of dedicated add-on cards is that they'll theoretically work with just about any graphics card with the appropriate connectors (but check before you buy). That ►

3D PRO TURBO

You can't help but notice how expensive monitors are, but this card offers you a great fix, because it enables you to connect your computer up to your TV and monitor simultaneously. Better yet, the TV picture is very impressive, and



Duke Nukem 3D on a larger screen TV is a joy. It's a combined 2D/3D card, and its performance is strictly average every step of the way. It does support professional graphics standards like OpenGL, in addition to its Direct X support. With 4Mb of SGRAM, which is faster than VRAM, it offers a maximum resolution of 1600x1200.

DEVELOPER	SUPPLIER	CONTACT	PRICE
ATI	ATI	01628 533115	£179.76 (4Mb)

Minimum system: Pentium, PCI, Windows 3.1

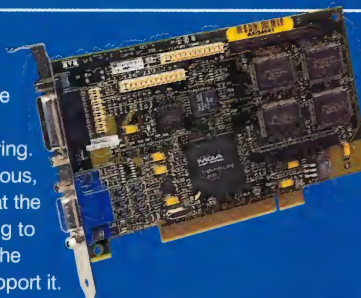
Verdict: The 3D Pro is a very average all-rounder which is elevated by its TV output.



MYSTIQUE

When we first reviewed the *Mystique*, we hadn't seen the full value bi-linear filtering. Now, thanks to the Righteous, we have, and it's clear that the *Mystique* leaves something to be desired because, like the *Apocalypse*, it doesn't support it.

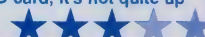
However, the card is the fastest 2D model in our round up by a good margin, while its 3D performance is a touch above average. This card was the fastest thing in town only a few months ago, so that shows you how quickly technology has moved on. One massive bonus, is an optional add-on card called the *Rainbow Runner*, which offers MPEG playback and video capture and editing.



DEVELOPER	SUPPLIER	CONTACT	PRICE
Matrox	Matrox	01793 441100	£163.33 (4Mb)

Minimum system: 486, 4Mb, Windows 3.1

Verdict: Although the *Mystique* is a blistering 2D card, it's not quite up there with the big boys when it comes to 3D.



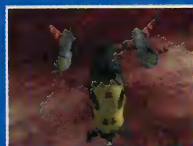


TERRACIDE: WHAT YOUR 3D CARD CAN DO

Terracide is one of the first Direct 3D games. As well as hardware smoothing and bi-linear filtering, it supports specific features like alpha blending and translucency. Below are screenshots showing just what Terracide's 3D card support can do. If you like what you see, it's out this month.



Terracide with alpha blending on...



...and with alpha blending turned off.



Here's a cockpit shot, with normal lighting.



Hardware controlled coloured lighting



Effects like this aren't slow with 3D cards.



Watch spaceships whizz by windows.

How are 3D scenes made?

Regardless of the processor, all 3D scenes are generated in much the same way. The first step is to create the actual geometry of the scene, which means connecting polygons to build the shapes that will be linked to form the 3D picture. By positioning polygons alongside each other in 3D space, the impression of dimension and solidity can be created. The next step is to add texture with a texture map. A texture map is a bitmapped image which is wrapped around a 3D shape. Textures have an optimum viewing distance within the 3D world – in other words they look best at a certain size, so filtering is applied to scale the bitmaps. This makes the textures look smooth, regardless of their range and scale.

The textures are now shaded so that their colouring

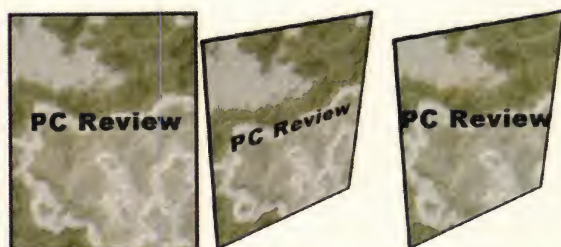
matches the lighting. There are three types of shading – Flat, Gourard and Phong shading – each more effective and time consuming than the last.

Shading also removes the apparent angles between adjacent polygons. Atmospheric effects like transparency, fog and distance haze are then added on top. Finally, the program must calculate how much of the 3D world is visible from the viewer's position to create what's displayed on screen (called the viewport).

This image is sent to the frame buffer on the graphics card. Some graphics cards have only one buffer, which is immediately displayed on the screen. Better cards have two, so that while one image is displayed, the next can be prepared without adversely affecting what's happening in the viewport.

This double buffering produces smoother transitions from one frame to another since you don't see the flicker as each frame is updated. Remember that because the 3D image will ultimately be displayed in 2D, the 2D speed of the graphics card is also important.

Perspective Correction



Rotate the PC REVIEW logo with perspective correction and the angle of textures change. Without it, PC REVIEW remains flat.

Putting things into perspective

3D cards make the real-time manipulation of textures a practical reality, with obvious benefits to the game's appearance. Scaling textures so they appear smooth up close is one well-known technique, but perspective correction also plays a vital role. This ensures that when an object, say a wall, appears at an angle the texture changes realistically to suit the new alignment.

► means that if you have a great 2D card, you don't need to sacrifice it to get 3D acceleration. Also, you can upgrade your 2D card independently of your 3D card. In fact, the only real downside to a dedicated card is that it occupies an extra motherboard slot and the associated resources that go with it.

Why buy a 3D card?

3D cards provide two benefits: smoother animation and better quality textures. To be honest, although we've read about programs that run much faster with a 3D card, we've yet to see any. However, plenty of titles demonstrate the second benefit. You will see finer, more detailed surfaces, smoother

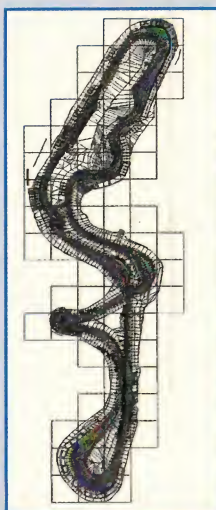
curves, far more subtle lighting and much better scaling as you move closer to and away from 3D objects. Perhaps no current game demonstrates the benefits of 3D acceleration better than *Tomb Raider*. Without a card, the surfaces are fairly mundane. With 3D acceleration, you could be watching a rendered movie.

If you need a new graphics card anyway, it'll cost you virtually no more to get one with 3D on-board. If you already own a decent 2D card, why not consider a 3D add-on card? Although they're no cheaper, you'll see much better performance from them than most combined cards. If your computer has a decent processor, lots of RAM, and the

other state of the art components, it's an ideal candidate for a 3D card. As you may have read earlier in the feature, of the 3D graphics cards we've seen over the last year or so, we think the best is the Monster 3D with its ominous-sounding 3DFX Voodoo chipset. But if you're still running *Doom* on a 486DX, there are probably more pressing improvements to make! It's certainly worth the heftier price-tag.

One thing's for certain. Now developers have these lovely powerful cards to play with, within two years, they'll all be obsolete. Technology will have moved on and by then you'll need something ten times faster just to get Windows up and running. (OB & MB)

From drawing board to starting grid: The making of Formula 1



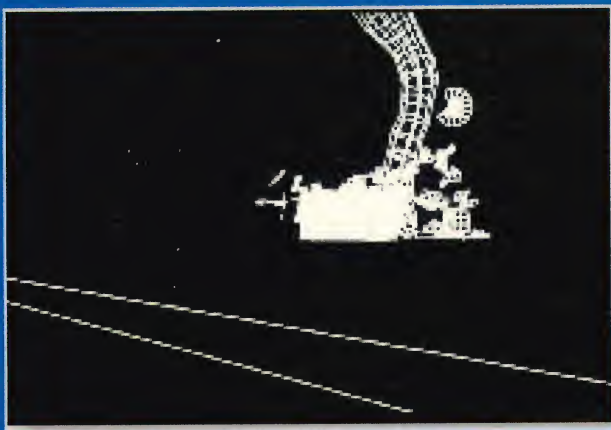
Every track in Psygnosis' *Formula 1* is a perfect recreation of a real life Grand Prix circuit. With course designs in hand, the first task for the designers was to map out every curve, rise and fall. Packages such as Studio 3D Max have made this process much easier in recent years, with fully integrated databases containing every point in the 3D world.



Nobody wants to race around a course made from matchsticks. Although the wire-frame model might look a little sketchy, just how much information it contains is made obvious by the next stage. Flat blocks of colour are applied to each polygon face, giving the illusion of solidity. At a stroke, the course looks far more realistic and suited for high speed car racing.



Now for the best bit. The extra levels of detail and shading that have propelled 3D graphics forward in the last few years add previously undreamt realism to the game. Grandstands packed with crowds, road-side obstacles and even track markings add a final touch of class to the circuit. Of course, most of the shading will be done later, in real-time.



These scenes from *Twister* were created with Silicon Graphics machines. Massive amounts of polygons make up the tornadoes.

THE FLICKER FREE THREE DIMENSIONAL HORIZON



Silicon Graphics' Onyx 2 RealityMonster complements any living room.

3D cards bring games we've previously only dreamt of. But, as ever, you can be sure the future will eventually make today's leading edge games look as ancient as *Space Invaders*.

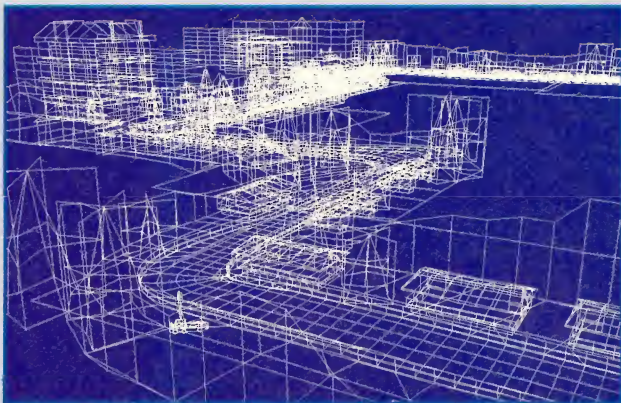
In the short term, chip manufacturers will continue to upgrade their hardware. 3DFX has already announced the Obsidian XS100, which will shunt polygons at three times the speed of its current Voodoo chip. With a price tag of around £5000 it's aimed squarely at the professional simulation and arcade market, but it might eventually reach the home.

In the more distant future, Silicon Graphics' superbly named Onyx 2 RealityMonster points the way forward. This parallel-processing juggernaut churns and shifts polygons at a rate of 80 million per second (compared to just over a million for today's machines) and comes with a minimum of 64Mb of RAM (it's expandable to a whopping great 8Gb).

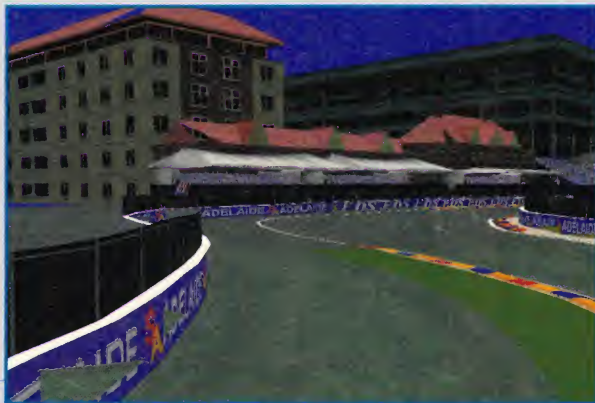
THE BEST PC RACING GAME

Ultimate Race is as stunning as its name isn't modest. Running at 800x600 in a whopping 16.7 million colours, it flies along (well, if you can avoid the walls at more than 30 fps). *Ultimate Race* comes bundled with VideoLogic's Apocalypse 3D card, and shows the card at its best. Fog effects, real-time lighting and lens flare transport you from your dingy suburban living room to some far flung coastal town where the sun never sets. Except that in *Ultimate Race* it does, since the evening light changes as you make your way around the course.

The cars in *Ultimate Race* have headlights that come on just as the light begins to fade.



This might look like the blue print for some top secret scaffolding project, but in reality it shows a section of course from Formula 1 at eye level. Once, 3D games were made of wireframes alone (though with hidden line removal) which only proves how far we've come.



At last, a bend worthy of the great Damon Hill himself. The level of detail in the buildings and other trackside scenery in Formula 1 is amazing. Even better, there's very little pop-up (where tower blocks appear in thin air as you approach them). Hurrah for the 3D card!

PATCH WORK

In this article, we've focussed on Direct 3D as the standard way of programming 3D chips. We believe that the 3D card market will only take off through standardisation and that the games developers will realise this too.

However, it must be admitted that the most impressive 3D performance we've so far seen has come from games written for specific chips.

Quake for the Rendition Verite, Tomb Raider for the 3DFX and Ultimate Race on the Power VR are all astonishing examples of this. Although it's clearly more time-consuming to write for specific cards than programming just one Direct 3D version, it's by no means impossible.

3D upgrades are supplied as patches, which, when executed, modify the game to take advantage of a single type of 3D card. New games written for specific graphics cards will work straight from the box.

Most developers claim they will support Direct 3D. Despite this, it's worth remembering that programming via a software standard will never be as fast as writing code for a specific chip. However good Direct 3D gets, developers will always be tempted to squeeze the best from the most popular cards. At the same time, manufacturers will continue paying for showcase games to bundle with their hardware.

Consequently, we must hope that developers write first for Direct 3D, and then adapt the code for specific cards as and when necessary. This way, you will at least be sure no 3D graphics cards will be left unsupported.

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MDK

Shiny Entertainment, maker of Earthworm Jim, has released its first true PC game. Can MDK out-do all the hype that surrounds it?

PLAYER



Recent advances in 3D graphics can only be a good thing, but they also increase the risk of duff game ideas hiding behind seductive visuals. This makes the arrival of MDK and Flying Corps all the more pleasing. It's the work that's gone into the finer aspects of each title that really points the way forward for PC gaming, using spectacular visuals to compliment good design rather than act as some kind of substitute. Maybe the days when programmer sloppiness takes precedence over the player's needs are coming to an end. We can but hope.

Mark Ramshaw
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On a good day, only 2.5 billion people will die. Why? Because an army of evil robots has landed and set about draining the Earth of its energy, killing everyone in the process, and leaving the planet a very barren place indeed. Yes, once again the world of computer gaming is calling upon you, and all good PC users, to save the human race.

This is the basic premise of MDK, the long-awaited first PC release from Shiny Entertainment. Okay, so a plot that involves saving the world from robots might not be

amazingly original, but that doesn't really matter. Despite what sounds like a mediocre storyline, MDK is one of the most innovative, enticing and fun games we've seen for a long, long, long time.

MDK sees you controlling Kurt, a man in a skin-tight grey jumpsuit and fancy helmet who parachutes down to Earth, landing on the massive, trundling mine crawlers which are devastating the planet. Six, in all, must be attacked, each of which is the size of a city and is occupied by all sorts of robotic thugs. MDK, then, has six huge levels.

After parachuting down to the first mobile city, avoiding missiles and radar lasers while grabbing weapons power-ups on the way down, Kurt begins his assault on the killer robots. Viewing Kurt from behind, you guide him *Doom*-style down the tunnels and through the various rooms, halls, corridors and arenas that are strung together to make up each mammoth level.

Though Kurt appears as a high res 2D sprite, everything else in the game is fully 3D and covered in detailed textures. The earth looks baked and cracked beneath Kurt's ▶



After leaping from platform to platform across this vast arena, Kurt dodges a deadly swinging pendulum.



feet, while the plate metal walls around him have a harsh look to them. Likewise, the carapace of each enemy is highly detailed, looking sophisticated, slightly stained and rusted, and threatening all at once.

The first level might look special, but the ones that follow are an absolute treat. The second, for instance, has vast sections where the walls in each arena reflect the futuristic towers of the surrounding city. The effect is stunning,

particularly when flying enemy craft made of the same reflective substance swoop in to attack. So good is their camouflage against the mirror-like backdrops that you're only likely to see them at the last minute. The walls might not reflect Kurt and his robot attackers as well, but all the graphics in this section of the game are nothing short of awesome. Level three, meanwhile, is full of strange artwork and graffiti, while level four kicks off as a snowy, outdoor jaunt full of surprises.

Visual variety is not all that *MDK* boasts.

Like Kurt's surroundings, the gameplay styles constantly change. Parachuting down was only the beginning. This is followed by some good old shooting action, and before long you'll be using Kurt's special sniper headgear. This is one *MDK*'s key innovations.

Attaching the gun to the front of his helmet turns Kurt's head into a high powered

DUMMY DECOYS

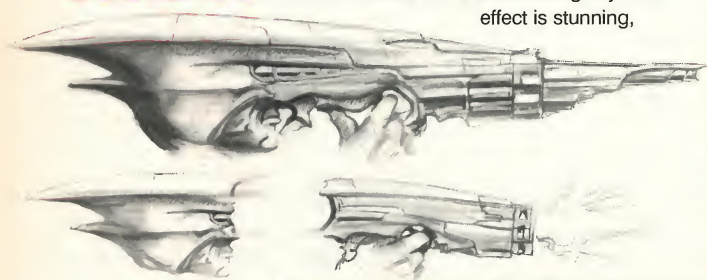


One item Kurt can find and use is the dummy decoy. All he has to do is pick it up...



...and release it when he needs to draw enemy fire while he plans his attack.

MDK



▲ In a nod in the direction of Earthworm Jim, and perhaps Damien Hirst, *MDK* includes an upside down cow floating in a tank.

◀ A robot behind protective glass pulls a moonie, not realising that Kurt can lob a mortar over the wall and kill him.



A view to a kill

Not only is the sniper rifle a great innovation, it's also lots of fun to use...



Kurt arrives on a platform at the end of the first level. Not much going on, but what's that in the distance.



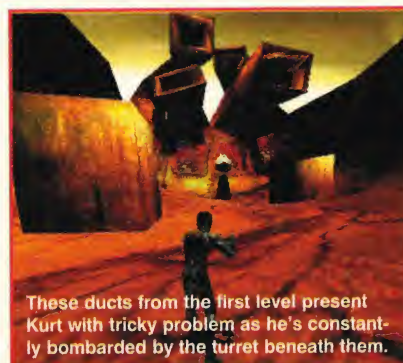
Snap on the zooming sniping weapon and what's this? A control tower with someone in it. Better take him out.



Zooming right in you can take aim. Unfortunately, though, he's spotted us and he's firing his laser.



To get through this portal, you have to take on this bunch of robot thugs.



These ducts from the first level present Kurt with tricky problem as he's constantly bombed by the turret beneath them.

just completed by simply blasting everything in your path. Sure, close-up shooting combat is part of it, and *MDK* is full of action, but to succeed you have to use a range of skills.

In some sections of the game you have to make Kurt negotiate a series of levitating platforms. In others, he has to use his parachute to either catch upward air currents or simply to ensure a safe landing after falling through a hole or off the edge of a platform. Elsewhere, you get to control Kurt as he slides luge-style down a sloping tunnel or snowboards along a twisting piste while being attacked by robots. It really is thrills galore.

Holding the varying styles of



play together is *MDK*'s undeniably brilliant level of overall design. Whereas games like *Tomb Raider* look incredible, they also have a tendency to often leave players at a loose end. *MDK* doesn't leave you periodically wandering around empty levels looking for some vital hidden key or a secret door. Instead, it continually throws you into situations where you have to quickly figure out how to survive. Totally focused, the level design pushes you further and further.

At the beginning of the fourth level for instance, you enter a large room and fight it out with a bevy of robot thugs. Having dispatched them, there seems to be no exit. A strange, flat, elongated object bobs up and down on the ground before you. Jumping on it, however, has the most startling of consequences. One of the walls

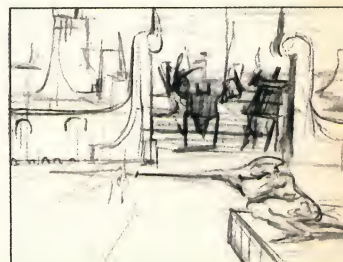
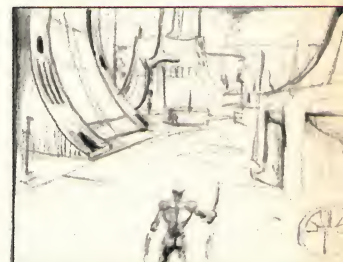
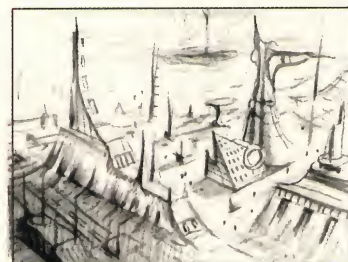
is blown away and it turns out the object is actually a snowboard.

Gleefully, you control Kurt as he cuts his way down a frozen gully, the speed of his motion blurring the textured grey ice beneath him. Not only must he shoot obstacles on the way, but robots, also on snowboards, start chasing him and shooting at him. Hugely fun, the snowboard sequence ends up dumping Kurt in a wide snowy arena. Distant robots take potshots at him, but a friendly craft lands. Should Kurt board it, he is taken on a bombing mission. Here, you get to aim bombs at robot troopers and their gun turrets below. The more enemies you take out the easier it is to fight your way across the same arena when you cross it after the ship leaves you once again on the snow-covered earth.

Despite the variety of experiences *MDK* throws at you, the game uses its own 3D ▶



If there's a quick way of getting from A to B, Kurt will find it. Here he slides on his backside.



GOING 3D

Shiny has been in contact with several 3D graphics card manufacturers, many of whom are clamouring for the company to make 3D versions of this splendid game. Though Dave Perry is impressed with the Matrox Mystique board, the only 3D version currently planned is for 3DFX graphics cards, such as the Monster 3D and the Righteous. For more on 3D graphics in general, turn to our lead feature on page 33.





MDK

DEVELOPER

Shiny

PUBLISHER

Interplay

CONTACT

01629 423666

PRICE

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PC REVIEW VERDICT



Another strange vista. A tank bears down on Kurt while an attack ship hovers to the top-right of the screen.



After completing a level Kurt falls through hyperspace – or something – only to be rescued by his pet dog.

► graphics throughout. There are no pre-rendered sections where everything moves along on rails. This is pure polygon-and-texture powered in-software action. Top marks to Shiny for that – many a developer would have taken the less interactive, less innovative route.

Likewise, the game's sounds are all done in software rather than spooling from the CD-ROM, and still they remarkable – particularly the music. Much of this would easily suit a blockbuster action film along the lines of *Die Hard* or *Dirty Harry*. And, like the graphics and gameplay, the music changes constantly as things progress.

Having the game's software generate all

the music and graphics has a distinct advantage. It means there are no glitches as the game tries to load up something that's pre-rendered or prerecorded from the CD-ROM. Unfortunately things do get jumpy occasionally when numerous robots are coming at you, especially if your machine's slower than a P133. Optimised for Pentium code, the game won't even run on a 486.

The other slight annoyance is the sprite that is Kurt. All through the game you get to stare at his back, watching the same running animation, the same getting-up-after-being-hit sequence and the same habitually-looking-around action when you leave him idle for a minute or two. When you're engaged in

Kurt's struggle to rid the world of the evil robots, their tanks, guns and even their robodogs, however, this is hardly noticable.

MDK is immediately attractive and intensely playable. This really is the sort of game that you just can't put down. After overcoming one challenge you know that the next is going to offer something different and you just can't wait to see what it will be. In fact, getting away from the game to write this review has been hard enough. Finishing the review even harder. And so, with 2.5 billion people being killed by evil robots every day, you know we've got more than one reason to leave you now and get back to playing *MDK*. (GW)

THE MAN BEHIND THE GAME

Dave Perry, President of Shiny Entertainment speaks to us about *MDK*...

Dave Perry has a tendency to tower over other games designers. The fact is he's about 6-foot-8. But more importantly, he's been responsible for such console hits as *Earthworm Jim*, *Aladdin* and *Cool Spot*. Now, *MDK*...

"The thing we were aiming for was different styles of gameplay," says Perry, "so you'll see in the game you can actually snowboard, slide on your backside, fly through space and parachute.



Dave Perry promises no multiplayer *MDK* unless it offers something genuinely new to gamers.

The idea is to keep it interesting. If you bought this game off the shelf cold and you started to play it, you won't really know what's going to hit you next. After a few different experiences I think it becomes more tantalising to keep going versus knowing that the next level is going to be virtually identical to the last one."

Variety, it seems, is very much part of the Shiny approach to game design. Even *Earthworm Jim* for the Mega Drive had isometric levels and strangely humorous sub games as well as the classic-style side-on 2D platform action. *MDK* very much carries on this tradition, and although it's in full 3D, there's plenty of platform hopping to be done.

Nevertheless, Shiny has really gone to town with the PC. Although *MDK* was originally meant to work on a 486, now it demands the full power of a Pentium. "What we did was we ended up writing a lot of Pentium assembly language in there and that's what make it fast. So the answer is we chose to make *MDK* for Pentium. Technic-

ally we actually block out the 486 because the code just won't run on it. Basically, we drive the Pentium as hard as we can. We're going to be seeing if there's any way the MMX can speed this up. I don't think it can."

One of the PC's advantages *MDK* doesn't exploit is multiplayer gaming over a network or the Internet. However, Shiny does plan to release a patch for network play. Perry: "We were thinking that instead of making the regular multiplayer stuff – just deathmatches – we were thinking of another way to do it. So we're going to have another design meeting on that after this ships to see if we can do it that will be kind of different. Every multiplayer company has called and we've just said, 'No, call us later.'"

Multiplayer mode, however, isn't all that Dave Perry has up his sleeve for *MDK*. In fact, he's got some very big deals for the game underway. Nothing's solid yet, but Shiny is talking to Hollywood about *MDK The Motion Picture*. So watch for it on the billboards.

Dave Perry on the competition:

Red Alert

"One PC game I've been playing a lot is *Red Alert* but I'm not so excited about that because I played *Command & Conquer* to death and it's really just 1.1 versus 2.0. Graphically it's a lot better, but..."

Tomb Raider

"I like the woman thing. I like the double gun thing. In a lot of *Tomb Raider* you run around and there's nothing happening. That was

something that seemed kind of weird, but in general it's really nice. They've got themselves a good artist and what a difference that makes. It makes it so much more believable when you're in all those nice icy caverns and everything. It creates an atmosphere. For me that's probably one of my favourite games of last year.

Quake

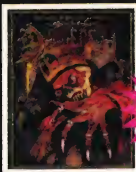
"Not really."



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WHAT NEXT?

Another flight sim is the answer to that one. Yes, the developer which brought you *Flying Corps*, *Overlord* and quite a few others is now hard at work on *MiG Alley for Empire*. Following the battles between P51s, F80 Shooting Stars and F86s, this next project tackles the Korean War. Once again satellite photography will be used to map the terrain, and a 12-player head-to-head mode is promised. Expect it to take flight by the end of the year.

Although not strictly realistic, the ability to pause the game and switch to a more dynamic external viewpoint doesn't half make for some impressive scenes.

FLYING CORPS

Rowan's refinement of the period flight combat simulation now reaches a new high.



Taxi for a take-off. Crash. Go in for a hard dive. Kerrunch. Crash. Swoop in for a dogfight. Smack. Crash. So it goes with your first few games of *Flying Corps*, the flight sim that could make you wonder how anybody ever won an aerial battle in World War I. These planes have all the ruggedness of balsa, the handling capabilities of a brick, and fewer luxuries than a Lada. And you thought rolling an F-22 while targeting a laser-guided missile posed a challenge. Shame on you.

Reach for the skies

Initially, *Flying Corps* appears far too simulation-obsessed for its own good. Developer Rowan has gone all out for a believable feel to these planes, right down to how fuel weight causes tails to tip, or the way that a Sopwith Camel can't emulate the more exotic moves of the Red Arrows without suddenly saying goodbye to its upper wings. This means that, despite the ability to disable a bunch of realistic aspects – from spins to blackouts and bomb weight

considerations – handling the old crates never even begins to feel easy. Even getting through the training missions poses a real challenge. Hell, just trying to land a biplane takes unprecedented levels of co-ordination.

Flying Corps will never appeal to the quick blast flight sim jock, but the steep learning curve also means it offers a more believable, more immediate, more downright physical simulation of flight than has ever been captured in a PC game. It's the sort of game which causes joysticks to break as overzealous players wrestle against turbulence and the limitations of their craft. And because of such complexities, it's also the sort of game which will have people falling in love with it.

A different era

Undoubtedly the decision to build the sim around WWI craft contributes

much to the game's genius. These slow-moving, poorly armed beasts are infinitely more idiosyncratic and exciting than jet planes. This ensures that dogfights give pilots a chance to see the whites of their opponents' eyes. *Flying Corps* is also sensible enough to take its painstakingly researched realism and cracking subject matter, then fire it up with excellent opponents, four exciting campaigns, and a first rate graphics engine. Hell, even the engine and gun noises are spot on.

Yes, there are some disappointments. The blocky, garish explosions are out of place in the lovingly created gameworld. The lack of an arcade mode is a missed opportunity. And the time skip option, while helping to retain pace, does tend to make the campaign missions feel like a series of staged fights. With such care taken in every other



Ironically, for such a realistic simulation, it's actually easier to fly the planes using the external view.

FLYING HIGH Monoplanes? Who needs 'em when you can fly these beauties?



SOPWITH CAMEL

The Sopwith Camel is unstable, tends to spin, has poor cockpit visibility, is pretty slow, and handles like a large brick. It looks lovely, though, and is good at dives.



SE5A

The fastest of the featured planes, the SE5A's stationary engine provides great manoeuvrability, with loops, rolls and dives all easily within the beast's abilities.



FOKKER DRI

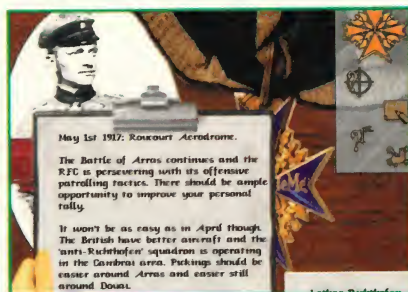
A triplane, the Fokker DRI's lightness gives it excellent handling. Because of this, tight turns and other sharp movements are easily achieved.

CD REVIEW

Try it! Fly it! We have a *Flying Corps* demo on our CD-ROM.



Cruising in low over the fields, the battle rages on high above. Stirring stuff.



Playing in the guise of the Red Baron, the next offensive is outlined.

aspect of the game, however, it's easy to forgive such niggles.

The four campaigns (two as Germans, one British, and one US) give you the chance to wear the goggles of notables such as Manfred von Richthofen (the Red Baron) and Eddie Rickenbacker (the, er, guitarist – maybe?), getting into missions that include taking out zeppelins, bombing tanks and leading squadrons into battle. Low level ability is as crucial as high altitude showboating, something which serves to highlight the work that's gone into making each campaign's landscapes different. True, there's a blockiness to the ground detail. And though the land does rise and fall, there's none of the hide-and-seek excitement experienced in, say, helicopter sims.

What the landscape system lacks in fine detail, however, it gains in the way it shows fields rolling off right up to the horizon. And by judicious use of texture colours (and some scanned aerial photography) you're given a pleasing, almost impressionistic view of the battlegrounds.



The landscaping system can also handle ground contours, though much of the playing area is a touch on the flat side.

Mean machines

The aircraft are the real stars of this show. Each plane is lovingly modelled, and sports markings that make it possible to work out who's on which side in a battle. What's more, the planes fly as good as they look. Pilot characteristics are based on real WWI styles, with each man responding to the current situation, making the most of his particular aircraft's abilities, and even learning from experience, to an extent. The multi-player options add that extra edge, but even one-player mode feels both challenging and fair.

Flight sims which strive for authenticity at the expense of accessibility are usually a pain in the arse, but for once a developer has got the balance right between realism and real action. Yes, it can take a couple of days to win the first real battle. And yes, it



Leading a whole squadron of German Albatros planes into battle, on a cloudless day in 1917.

might be another few weeks before the end of a campaign is in sight, even with all the realism options switched off and enemy intelligence turned down to dumb. But that's the point. *Flying Corps* is trying to capture the essence of great chunks of World War I, rather than the quick thrill of the battle. You can develop tactics gradually and the

sense of taking part in a real campaign can be built up so well you wouldn't believe it.

Don't bother joining up if the thought of working for your wings offends. But those willing to invest the time will reap wonderful rewards from *Flying Corps*. It feels as close to the real thing as you could hope for, packing enough visual and audio thrills to bring the action to the screen in cinematic style, and it's packed with enough subtlety to give it near infinite longevity. Quite simply, this is the flight sim's finest hour. (MR)

MAXIMUM CONTROL

Flight Sim buffs looking for that edge of added realism and greater overall control will be pleased to know that *Flying Corps* supports special throttle and rudder pedals.

DEVELOPER

Rowan

PUBLISHER

Empire

CONTACT

01753 549442

PRICE

£39.99

MINIMUM SYSTEM

P90, 16Mb RAM, 5Mb hard disk space, quad speed CD drive, mouse, Windows 95

PC REVIEW VERDICT

Perseverance brings untold rewards in this tower of realism, this cathedral of excitement, this shed-load of ace visuals.

9



ALBATROS DIII

The German Albatros DIII is fast and especially well disposed to tight climbs and dives. It also packs some excellent artillery, but does have trouble with basic turns.



NIEUPORT

Fast and manoeuvrable, the French Nieuport is, unfortunately, structurally poor. If you want to see what happens when a wing gets ripped off, try flying this one.



SPAD XIII

Although tail-heavy and something of a duffer at low speed, the Spad XIII is stable, relatively fast and unlikely to fall apart at the drop of a hat. Always a bonus.

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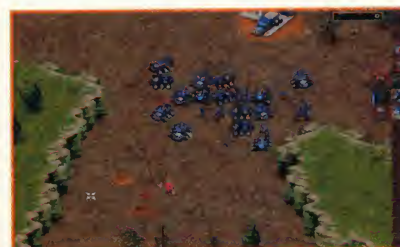
PLEASE SIGN



Krush Kill 'N' Destroy may lack the pioneering spirit of Westwood's famous duo, but with its detailed sprites and 3D terrain it's arguably better looking.



The moor mutants get a thrashing before they can join up with a unit of troops to the south.



This is how to fight. Amass a powerful human army, then pick the mutants off one by one.

WELCOME TO THE HOUSE OF FUN

All hail the return of the once illustrious Melbourne House. Famous for publishing the classic Spectrum adventure, *The Hobbit*, and sundry titles about an odd man called Horace, the Australian maestros have been rather quiet for the last decade. Evidently, programming without a squishy keyboard has taken a bit of getting used to. Full marks go to Melbourne House for making such a fantastic return, even if the ideas they used aren't all that original.

KRUSH KILL 'N' DESTROY

An undeniably smart game, but there's something vaguely familiar about it.

Now here's an idea – how about a game that pitches differently armed sides against each other in a battle for supremacy. One side gets all the benefits of technology, while the other has sheer brute force.

Imagine you can take control of either side, work through various missions, and control the game using a point-and-click command interface to direct troops, build new units, and choose the optimum way to fight. Whack in a multi-player option, some between-level movie-style scene setting, and you have a winning formula.

This is the formula that *Krush Kill 'N' Destroy* employs, ensuring a blend of pure action and cerebral wargaming elements. But, unfortunately for *KKND*, the formula has already been put to good use twice now by a certain developer called Westwood. You may have heard of the attempts, namely *Command & Conquer* and *Red Alert*. Which is a shame, because unoriginal idea aside,

KKND is one helluva good game. Had it appeared first, you can bet it would've knocked the wind out of Westwood's sails, particularly since it packs visuals far more suited to SVGA resolution.

Judging *KKND* purely on its own merits,

it's easy to get excited, what with the humorous storyline pitching the mutant survivors of a nuclear war against regular humans.

Each side gets 15 missions of its own, with a further ten for multi-player games – all highlighting the disparity in aims and

technologies of each side. So, while the mutants want to crush Joe Human for being 'unevolved' and attempt to steal the 'earthblood' (oil), the humans want to wipe out the genetically impure scum and reclaim their land. And while mutant leaders get to play with goodies such as giant scorpions, those opting to play on the side with regular DNA have access to an impressive arsenal of more familiar military hardware – motorbikes, ATVs and the like.

There are plenty of empire-building missions – which involve building fuel processing plants, troop and vehicle generating buildings, outposts and repair shops. But a lot of care has been taken to tailor the levels for each side, offering all kinds of rescue, defensive and ambush missions. And thanks to some exemplary AI routines, the units almost always do exactly what was intended, finding the best route to their location, attacking intelligently and so on. The only cause for concern is the way some units hang around when there's a battle going on elsewhere on screen. But this simply puts the onus on you to guide the units into battle, rather than expecting the computer to do all the hard work.

Of course, it's no use pretending – this is ridiculously familiar territory. But should *KKND* be penalised for it? Chances are there are plenty of people looking for another action wargame to add to their collection. And chances are there are still one or two who've yet to experience the joys of this genre. This may not quite beat Westwood at its own game, but it's a pretty close run thing. You'd do well to check it out. (MR)

DEVELOPER
Beam Software
PUBLISHER
Melbourne House/E.A.
CONTACT
01753 549442
PRICE
£39.99
MINIMUM SYSTEM
P75, 16Mb RAM,
27Mb hard disk space,
double-speed CD drive,
mouse, soundcards.

Zero points for originality, but for sheer playability it's easily worth an...

PC REVIEW VERDICT

8

FACE TO FACE: Like the *Command & Conquer* games, you get to see who's giving the orders...



The human leader, who enjoys using phrases like 'we couldn't triangulate his position, but we managed to quadrilateralise the pentangulation'.



Humans get occasional transmissions from this accident-prone scout. It's not long before he gets stranded behind enemy lines, prompting a rescue mission.



This is one of the friendly faces giving orders to the side of the Mad Max-style survivors. Enhanced DNA or just plain mutant? You decide.

CD REVIEW

Have a go at *KKND* yourself. We've put a demo of it on our coverdisc.



BATTLESHIP

Battleship like you've never seen it before. Forget crosses on a grid – this latest incarnation features pre-rendered carnage at every turn.

After the gold rush of Monopoly, Hasbro prepares to enter into war with its latest boardgame conversion.

DEVELOPER

NMS

PUBLISHER

Hasbro

CONTACT

0181 569 1234

PRICE

£39.99

MINIMUM SYSTEM

486/66, 8Mb RAM, 1Mb hard disk space, double speed CD drive, mouse, Windows 95, all Windows soundcards

Bigger and brasher than the original, but not everyone will prefer it.

PC REVIEW VERDICT



ALL AT SEA

There's just one really obvious omission in Hasbro's latest version of *Battleships*. The sound effects are great, the rendered sequences depicting airstrikes, torpedo hits and battleship sinking are all fantastic and the point-and-click interface isn't quite as clumsy as it first appears. But why, oh why, did the developer forget to put the "You Sunk My Battleship!" sample in there? The game's just not quite the same without it.

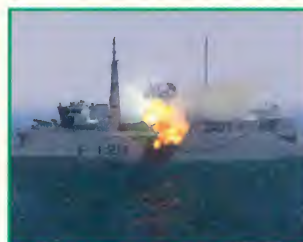
Chances are you have fond childhood memories involving pen, paper, and funny little grids. Unless, you're a bit younger, then you're more likely to have owned the original 'computerised' *Battleships* boardgame, where pretty much everything still had to be done by hand, but at least the sound effects were supplied. Just as countless children have been introduced to role-playing via those *Fighting Fantasy* books, so *Battleships* offered most of us our very first taste of wargaming.

Except this isn't quite how you'll have remembered the game. Sure, the original version is in there, in the guise of the first training level. But even that has suddenly gained 3D perspective, a point-and-click interface, and – sacrilege – rendered footage that plays in the background every time a shot is fired. But such concessions to the late 20th century are only the beginning, so you also get air strikes, an impressive range of missions (including a deathmatch), huge maps and multiple weapon types. The game also enables you to set waypoints for various

fleets, automate your defence systems and utilise a radar satellite in addition to all the more usual enemy-detection methods.

It's the satellite feature, however, which really brings a new angle to the game, with the option to blind-launch long-range missiles into enemy occupied sectors or get closer to gain a firmer lock on the actual positions of the enemy vessels. Naturally, doing this means the enemy can then easily target your own craft, so you must discover a middle ground, where hits can be maximised and defences maintained. It's a dead simple system, but works like a dream, justifying all the different weapon types and ship classes, as well as making it possible for players to adopt radically different strategies.

The game works well enough against the computer, but it's the multi-player market which Hasbro is obviously gunning for here.



A direct hit on an enemy boat doesn't just result in a little orange peg on the playing grid anymore.

The game comes with two CDs in the package to enable instant multi-play between a pair of PCs, with options to hook up to three other players via a modem or network (the Internet option is sadly available to players in the US and Canada at the moment).

It's hard to begrudge the frills in *Battleship*. Just as the advanced boardgame spiced up the battle with a few audio samples, so this implementation further brings the war theme home with a multitude of rousing sequences and naval gadgetry. The only real question mark is over the addition of these new features and rules. *Battleships* has managed with its simple gameplay well enough up until now, and you may find the additions unacceptable. But this said, they do actually work pretty well, and without them, would you want to fork out £40 when you could play it the old-way for nothing? (MR)



On the main screen it's possible to zoom out of the battle – essential, since the grids are many times the size of the old-style playfield.



Even oil rigs become prime cannon fodder in this highly expanded interpretation of the rules of the classic wargame.



In addition to battleships, the game also features aircraft carriers, planes, helicopters and even sea to air missile sites.

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ECLIPSE OF THE ELIPSE?

One of the most distinctive features of the *Ecstatica* games is that instead of using blocky, hard-edged polygons to construct the characters, they use ellipsoid graphics. This makes for rounded, organic and wholly more realistic looking figures. The people, monsters, animals and plants in the game therefore look particularly convincing. But what about the things that should actually be block shaped?

Well, very often the settings too are built from hundreds of bubbly ellipsoids rather than squared off polygons. In *Ecstatica 2*, for instance, you'll find the castle walls, floors, roofs and paving are all textured with hundreds of tiny round shapes, rather than the bitmap textures that are usually stretched across normal polygons. The effect here is interesting, but often something less than convincing. Now what's needed is a graphical technology that combines ellipsoids for organic characters, and fully textured polygons for flatter, squarer objects.



Our ellipsoid hero tops up his health by drinking one of the potions that appears every once in a while after he's killed a monster.



ECSTATICA 2

The legend of *Ecstatica* continues with another adventure full of fighting, magic, fighting, puzzle-solving and fighting...

There are two sorts of enchantment. Firstly, there's the nice kind. This usually involves fairies, talking animals in mystical lands and maybe the odd bad old witch who inevitably melts away into a puddle or is converted to the forces of goodness, mom and warm huckleberry pie.

Then there's the not-so-nice kind. Here you'll come across demonic possessions, tormenting madness, otherworldly magics and plenty of violent deaths.

The enchantment on offer in *Ecstatica 2* is certainly of the

latter species. Which isn't surprising, really, as the original *Ecstatica* mixed large measures of vicious combat with smatterings of nudity and satanic symbolism, and rammed it all down the hatch with an 18 certificate.

Ecstatica 2 takes up where the first game left off. Having rescued the lovely lady *Ecstatica* from the clutches of an evil demon, you head home with your ears full of the sound of wedding bells.

Or should that be Hell's bells? For no sooner do you set foot in your homeland than you're in the grip of a new adventure. *Ecstatica* is whisked off by flying demons and held captive in a great castle.

Naturally, once again, you control the hero of the tale and your mission is to find *Ecstatica*, destroy any all-powerful evil beasties you come across and escape the castle. The organic-looking ellipsoid graphics make their return, and as with the original, *Ecstatica 2* sees you progress from scene to scene with changing 3D viewpoints in a style similar to the *Alone in the Dark* games. This time, however, the graphics are much sharper and there are 12 times the number of locations to explore.

You've got to fight...

From the outset of *Ecstatica 2* you have to fight for your life and here mastering the key controls is more crucial than in most adventures. Moving around the castle is pretty easy using the direction keys. It's the combat that takes some time to get used to as you have to hold down combinations of keys to strike blows or perform acrobatic rolls to dodge enemy attacks.

Your enemies, meanwhile, take on a variety of shapes and forms. There are green goblins, trolls, gelatinous blobs, axe-wielding monks, winged demons, long-armed ogres, killer spiders, brimstone-spitting golems... the list goes on.

And, unfortunately, these mystical monsters just keep coming. Indeed, one of the



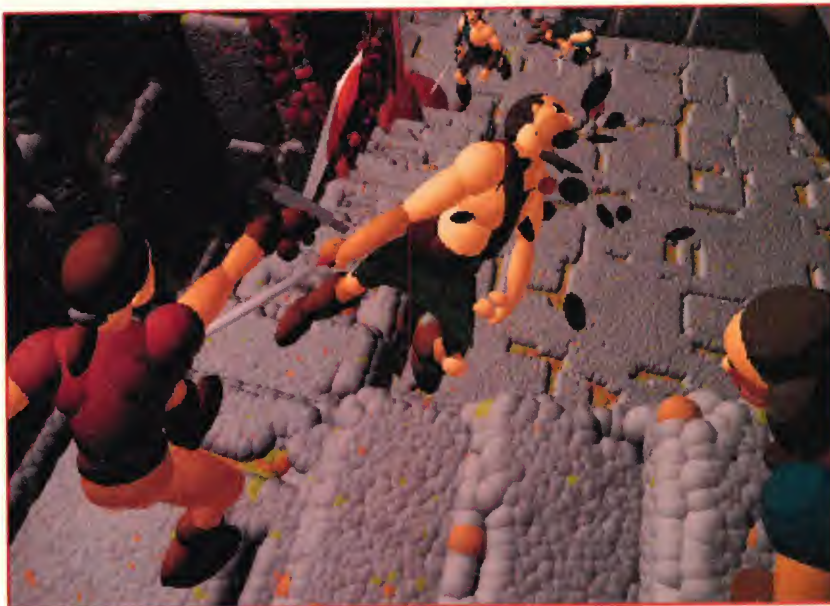
Buy the game and you get this huge map of the setting.



It looks great but the close indoor views can create scene change problems.



When attacked by Amazon's just remember one thing: keep thrusting.



Despite some collision detection problems, striking a blow – with either sword or fist – can be a very satisfying experience indeed. That's particularly so when the combat's viewed close up.



This castle-top battle against the Arch Mage looks particularly good.



The cyclops attempts to duck a bolt of magic from our hero's wand.



This fortunate camera angle sort of gives away what's going to happen.



Severed heads keep up the hideous tone of the Ecstatica name.



Stabbing some goblins. Again. This time in the furnace room.

key irritations of playing the game for any length of time is that the fighting becomes so repetitive and that you can sometimes forget what it is you're doing and how enticing the wider story is. It soon reaches a point where the fighting gets more tiring than challenging and you die not through lack of skill but fading interest.

What's more, the fighting isn't all that good. Just like in the first game, the collision detection is a bit wonky. You can swing at an opponent and appear to miss, yet still send him reeling. Wonkier still is what happens when you engage in a fight when crossing one of the nodes that takes you to a new camera view. As blows are exchanged, the game will switch between camera angles for a wholly disorientating effect. Actually, both these problems were characteristic of the first game and they still haven't been fixed.

What a nice view

Nevertheless, *Ecstatica 2* does look much sharper than its predecessor, and those changing viewpoints do have their advantages. Some of the sights you encounter are nothing short of breathtaking. At one stage, for instance, you have to climb narrow staircase that spirals around a high tower. The scene is incredible as you look down on the little hero trying to deftly control his every

step up the spire, the thunder claps growing louder as he ascends.

It's similarly remarkable when he looks out one of the windows. The view changes to a wide angle shot of the awesome edifice of the castle, with just a minute little warrior standing in the window. One more step, and he plummets down into the moat and must swim to safety.

The quest going on behind all the fighting, meanwhile, is suitably engaging. Once you find an imprisoned priestess, you learn that you must retrieve a series of magical artefacts and then defeat an Arch

Mage character. To do so you must find the right keys, hit the right switches (which usually entails pummelling a stone gargoyle) and enhance your magical abilities.

Indeed, magic plays a much bigger role here than in the original. Potions revitalise your health and can turn you invisible. Magical weapons help you kill enemies faster, and some even shoot balls of glowing energy. Enchanted boots protect your feet, armour can guard life and limb, and scrolls generally improve your overall magical rating. Likewise, you can collect treasure as you progress.

All this makes for a rather sophisticated adventure that's not quite as linear as the original. The castle's so large that there are usually two or three areas to explore at any given time.

Any good

Despite being a huge game, *Ecstatica 2* hasn't quite managed to capture the haunting, twisted, sacrilegious atmosphere of the first *Ecstatica*. The monsters aren't as fearsome, and as we've said, killing them gets increasingly repetitive. After five or ten hours play and a kill list that includes 34 green goblins, 25 trolls and 8 mad friars, things start to seem a touch more corny than they should.

Don't get us wrong, the quest involved in *Ecstatica 2* is executed well enough to keep any adventurer smashing goblin heads continuously for the cause. And there's certainly enough of a game here to make for good value. However, the dark sort of enchantment that made the original *Ecstatica* so captivating doesn't quite show through. Perhaps the spell is wearing off. (GW)

MISSING THE WOLF

Anyone who played the original *Ecstatica* for more than about five seconds will remember the unkillable werewolf who was always waiting to attack you. Unfortunately, as far as we know, he doesn't make a reappearance in the second game. Though you could really grow to hate him, now that he's gone things don't seem the same without him.

DEVELOPER
Andrew Spencer Studios
PUBLISHER
Psygnosis
CONTACT
0151 282 3000
PRICE
£39.99
MINIMUM SYSTEM
P75, 8Mb RAM, 30Mb
hard drive, CD drive,
SVGA, Windows 95 or
DOS

PC REVIEW VERDICT
A huge adventure game that boasts lots of action, but flawed in some respects.





A novelty course, Apollo shows just how daft Course Architect can get.



The 'mouse swing' system simulates real club control quite accurately.



A grainy looking female player navigates the Hawaiian Prince course.



In time-honoured fashion, the PC selects the most appropriate club.

DEVELOPER

Maxis

PUBLISHER

Maxis

CONTACT

0171 505 1500

PRICE

£39.99

MINIMUM SYSTEM

486/66, 12Mb RAM, 15Mb hard disk space, double speed CD drive, mouse, Win95, all Windows soundcards.

A sim success. Slow, but detailed and with the bonus of a course designer.

PC REVIEW VERDICT

8

DESIGN FOR LIFE

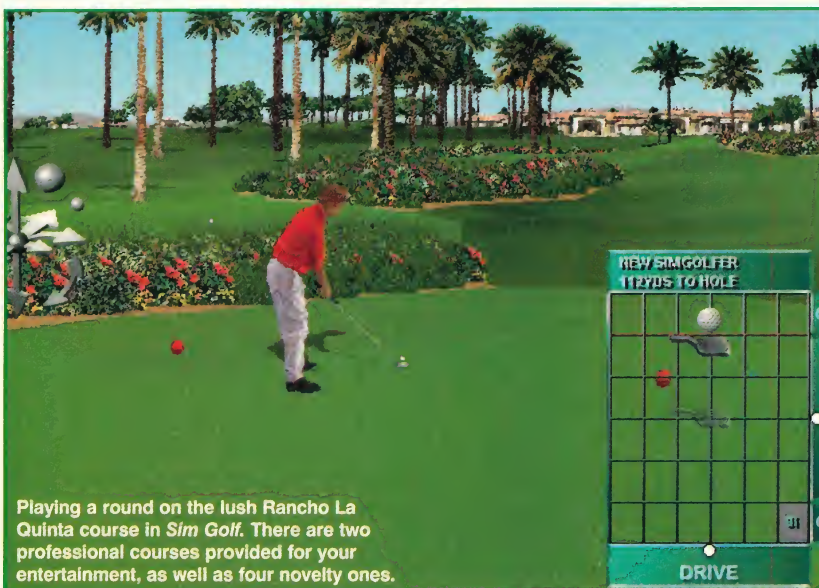
Amazingly, golf simulations which enable you to create your own course are a bit thin on the ground. In fact, the only other game for the PC which features such an option is Jack Nicklaus Golf And Course Design, Signature Edition, published by Accolade. Sadly, the course designer proved to be more fun than the actual game. It's also so old that it only offers 16-colour EGA graphics. Which pretty much makes Sim Golf the leader in a field of one.

CD REVIEW

You'll find a demo of Sim Golf on the disc.

SIM GOLF

Maxis' Sim label gets even more mainstream with an old-fashioned golf simulation.



Playing a round on the lush Rancho La Quinta course in Sim Golf. There are two professional courses provided for your entertainment, as well as four novelty ones.

Whatever happened to the farms, ants, towers, cities and fish? At one time Maxis was the king of kook, wizard of weird and leader of the novelty pack. But if the idea of slipping out a helicopter jaunt under the *Sim Copter* monicker seemed to be letting the side down, *Sim Golf* is final proof that Maxis wants a slice of the regular gaming pie. However, where *Copter* (reviewed page 62) shows the company to be biting off more than it can chew, *Sim Golf* thrives on the Maxis obsession with menus and options, and positively shines in its open-endedness. In fact, *Sim Golf* actually offers Electronic Arts' *PGA* series some stiff competition.

On the green

The real showpiece here is the Course Architect, a Windows-based design tool capable of modifying courses or building them from the ground up. You can set frequency and range of undulation, acreage of a course and even a style of horizon. Then, using



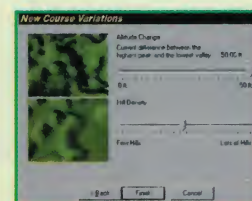
R Trent Jones Jr, designer of the professional courses, offers playing tips.

a familiar range of object select, fill, and drag-and-drop tools, you can add detail to a course. What's more, it's possible to set up and modify an impressive range of camera views that you can use to carry out this landscaping. It takes a fair bit of work and understanding to achieve useable results, but in almost every respect the Course Architect side of *Sim Golf* gets things just right.

Amazingly, the actual in-game stuff is pretty impressive, too. While it lacks the visual panache or tight, believable gameplay of the *PGA* series, *Sim Golf* still works a treat, offering more viewing options than any gamer has a right to expect, plus a level of simulation that'll satisfy all but the most niggling of PC golfers. And in the 'mouse swing' system, Maxis has come up with the first useful new shot control system in years. Here, the movement of the mouse directly corresponds to the swing of the club – speed, glide distance and accuracy all play a part, just as they do in a real stroke. A regular power-swing is included, you are likely to favour the new technique. You'll find that while it lacks

PUTT OFF COURSE

Don't like the courses provided? Are they giving you a handicap in negative figures? Then why not design your own?



Decide the size and flatness of your ideal course landscape in the drag of a mouse.



Add your greenery using art package-style tools to get results really fast.

a reaction-based challenge, it really does offer more control and a much better imitation of the real thing. The fact that Maxis hasn't implemented the power-swing with any real enthusiasm may also have something to do with your preference.

The 19th hole

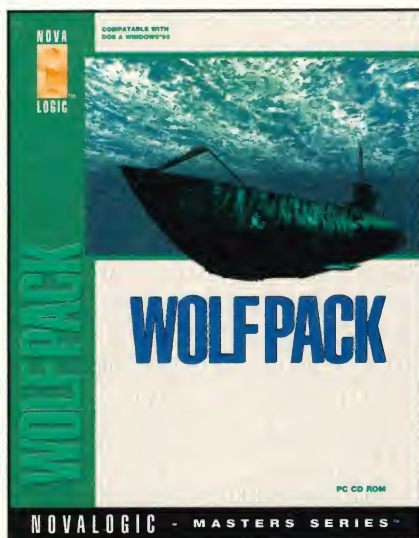
The only question marks sit next to the authenticity of the ball physics and the crippling lack of speed you'll encounter when attempting to do anything from bringing up an options screen to taking a swing. The former is arguably merely a matter of taste, but the latter does ruin the pace of the game and gives rise to situations like the sight of a ball dropping into a hole up to half a second after you've heard the 'plop' sound. And all this on a pretty beefy Pentium, too.

Sim Golf has the usual multi-play, modem and network options, of course. And thanks to a Windows-based system, there's also the opportunity to place loads of different camera views and information boxes on your screen in any way you choose. But mostly, *Sim Golf* is simply a golf game, and a very good one at that. Whether you find it more desirable than *PGA* rather depends on how much you like the idea of digging up the landscape with a bit of golfing DIY. (MR)



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NOVA

LOGIC™



GET THE MAX

"We're definitely breaking new ground," M.A.X.'s producer Ali Atibeck recently told *The Interplay Rag*, Interplay's on-line webzine. "We asked ourselves, can we come up with a turn-based game that is both simple enough to jump in and play, so you're not overwhelmed or intimidated by the complexity, and at the same time find a way to not have to wait for your opponent so that the play is continued? That's how our concept of simultaneous-turn-based came to be. Now we shall see how the public receives it." You can catch up with Interplay's Webzine at <http://interplay.com>.

M.A.X.

A game named after the real star of TV's *Hart To Hart*, or a sci-fi wargame with more bells than a cathedral? We bring you M.A.X.



Sleek aircraft, technologically advanced tanks, harsh alien terrain – all elements which M.A.X. contains, but fails to bring to life effectively.

DEVELOPER

Interplay

PUBLISHER

Interplay

CONTACT

01628 423666

PRICE

£39.99

MINIMUM SYSTEM

486/66, 8Mb RAM, 4Mb

hard disk space,

double-speed CD drive,

mouse, all major

soundcards.

Admirably

complex, and

different. But at

the expense of

real enjoyment.



PC REVIEW VERDICT



Controlling unit movement is handled in a similar way to most action wargames, with extra options to make it more difficult.



The ready-made missions include oddities such as this, where you're given only scout craft with which to explore and fight.



Each unit comes with its own statistic screen. If only the in-game representations of the vehicles were this good.



In addition to a full campaign mode, there is a range of one-off missions available, covering all the different planets.

War, like life, is never simple. But at least the great military leaders of our time can rest easy in the knowledge that they never had it this tough.

M.A.X. isn't just bordering on complex, it's the sort of game that positively revels in its myriad features, has a party to celebrate the weight of its manual, and spends the rest of the time trying to coax novices into its bewildering world. Whatever you do, don't file under *Command & Conquer* Clones.

Neither should you consider partaking in a bit of M.A.X. if you're just looking for some action, or in need of some quick mouse-operated action. For, while M.A.X. (*Mechanised Assault & Exploration*) works with the ever reliable building blocks of battling the enemy, doing a bit of base expansion, some unit construction, and the subsequent defence of said base, this is a markedly different game to any other action wargame out there. Not least because it doesn't exactly work in real-time.

Instead M.A.X. opts for a weird hybrid of turn-based and real-time battles. It's sort of real-time, but each vehicle and building has a limited number of action points to use in a single turn. Which, unfortunately, stifles the pace in the same way as turn-based games, yet retains all the limitations of the more immediate wargames. Mistake number one.

Sadly, this isn't the only area in which M.A.X. forgets to cater for the player. For, while the inclusion of around 50 units is admirable, many of them appear redundant. Particularly when you consider that it's possible to upgrade them all through various levels of ability. It's no wonder that there's a whole bunch of training levels – they're needed just to teach the player the basics of unit construction and firing at the enemy. Actually winning a proper level tends to follow much, much later.

The problem is, all this diversity and scope has got in the way of the enjoyment. Battles are unsatisfying affairs, particularly

with enemy units only being visible when in range (yet the ground can always be seen). Sure it's authentic, but it's not fun. And do players really want to do stuff like connecting power lines to every single building? Such mundane tasks are why computers were invented in the first place. Throw in a dull overhead view of seriously bland landscapes and anonymous unit types (all sides get to use differently coloured, but otherwise identical looking ones) and you're dealing with a pretty unappetising mix.

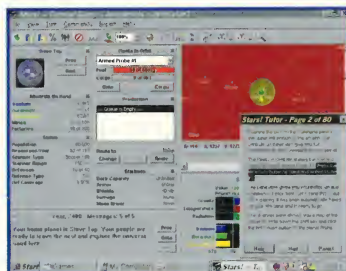
Which is a shame, because those willing to take a university degree in playing M.A.X. will find the campaign and multi-player levels pretty cool, and all those silly complexities will actually begin to have a positive effect, revealing a multitude of subtleties opening up a whole range of strategies. Chances are most people will have given up long before that, however. But that's the price you pay for painting your gameworld in numbers and rules. And for having a poor title. (MR)

The problem is, all this diversity and scope has got in the way of enjoyment. Battles are unsatisfying affairs. Sure it's authentic, but it's not fun.

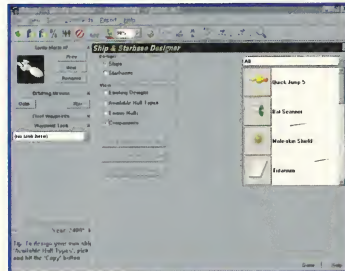


STARS!

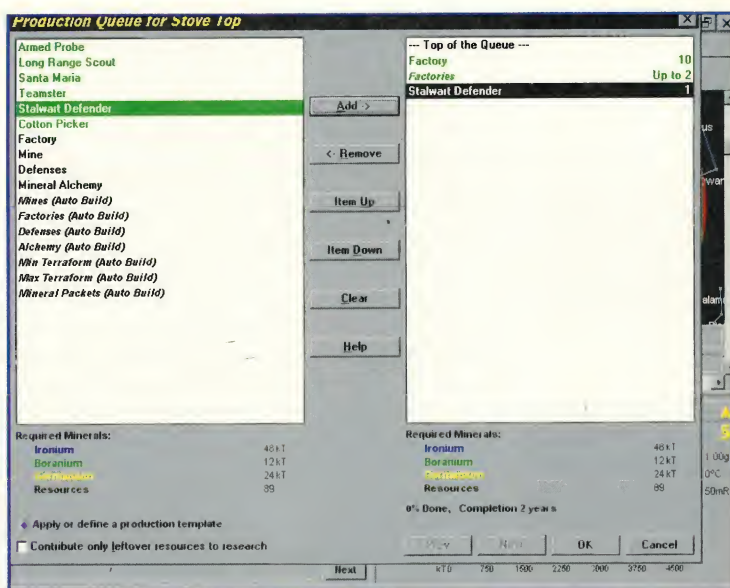
Right at the end of the scale of strategy games there's Stars.



Even the tutorial mode is hard work, with no less than 80 whole pages of step-by-step instructions.



You can customise almost every aspect of the game, right down to building new ships from a long list of components.



The production screen. The very idea of constructing new factories or engineering sleek new star cruisers is pretty exciting. But a few images and friendly menus would have been nice.

Appreciating the size and complexity of the universe is hard, until you've played *Stars! Stars!*, (please excuse the exclamation) is a science fiction strategy game where the sheer size and scope of the universe is all consuming. *Stars!* is very big. *Stars!* gives players the opportunity to play against 16 like-minded friends. And *Stars!* caters for just about every kind of empire-building and civilisation progression you could ask for. *Stars!* is a very scary game indeed.

The impression is that the no-nonsense, purely functional, highly Windows-based front-end has been chosen because it demonstrates what a clever, adult-minded, business-like affair the game really is. Don't be fooled. The off-putting front-end is there to put you off. Do you really think any programmer in their right mind would want their game to look like this, or that they'd want to inflict it on the general public? Oh no. The

Some will no doubt get off on a game which has many minute details.

reason *Stars!* looks so suspiciously like an interstellar spreadsheet is because it was written by people whose previous programming experience was to code spreadsheets! Now that really does justify an exclamation mark.

An far reaching framework for deep space exploration, expansion and warfare is what it offers, then. Operating on a turns basis, players can research new hardware, build factories and space craft, send scouts to find new planets, install mining operations... the list is near endless. This is obviously a boon for strategists: it's possible to approach the game from almost any angle, and with the ability to post turns to fellow players using anything from a network to a floppy disc in the mail, there's a definite air of the computer wargames of the 80s here.

But none of this excuses its mindbogglingly complex nature. Menus have sub-menus, which in turn have charts, which are

handily placed next to pull-down bars, which open up more options, which give access to a large array of high-tech components, which really bloody well starts to irritate. Even with a comprehensive tutorial system it can take longer to learn how to use the game than it takes to become familiar with Windows in the first place. And even then, the rewards aren't worth it. The races are anonymous, the technology all too predictable, the star systems dull and – quite literally – two dimensional. Even the rendered into sequence looks like it would rather be elsewhere.

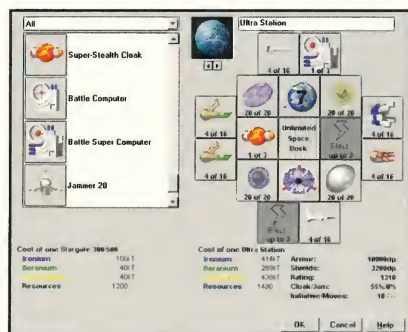
Some bizarre individuals will no doubt get off on a game which has many minute details of so many empire-building options. They will no doubt find that the way the game expands from simple colonisation chores to a myriad of possibilities and permutations to be a thing of real beauty. But for anybody without the NASA job or the desire to plough through statistics until they die, Virgin's *Ascendancy* offers a far more accessible, visceral and frankly normal take on the same theme. Be afraid. Be very afraid. (MR)

DEVELOPER
J McBride & J Johnson
PUBLISHER
Empire
PRICE
£39.99
CONTACT:
0181 343 7337
MINIMUM SYSTEM
386, 4Mb RAM, 5Mb
hard disk, double-speed
CD drive

PC REVIEW VERDICT

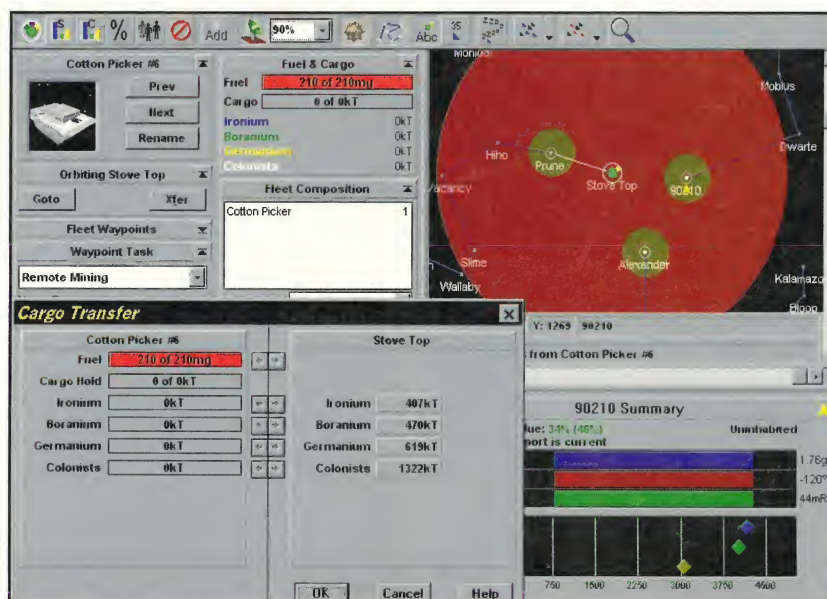
Brilliant – if you're a sad accountant with a Star Trek obsession.

4



▲ This is about as visual as the game gets. And it's still unnecessarily confusing. What's wrong with user-friendly presentation? Eh?

Getting ready to pile a load of colonists onto a spaceship, a habitable planet having been found at the end of the previous turn.





PLAY THE PIPES OF PEACE

Stumbling on a set of pipes is another great excuse for the designers to bring in a cool cut-scene.



Young Blub gets ready to blow his trumpet.



It seems that particular note was the call of the wild. The wild cat, that is.



Meet the Blub family. Just like any other, except that little bit more stupid. And a touch more alien.

DOWN IN THE DUMPS

Forget the Simpsons, the ultimate dysfunctional family are from outer space. And they're landing soon in a heap near you.

DEVELOPER

Haiku

PUBLISHER

Philips Media

CONTACT

0171 911 3000

PRICE

£39.99

MINIMUM SYSTEM

486/66, 8Mb RAM, 5Mb hard disk space, double-speed CD drive, SVGA, mouse, all major sound-cards, Win95 compatible.

Splendidly daft, utterly beautiful, and reassuringly large, but not quite a classic.

PC REVIEW VERDICT

6

Return to render

Have clever animation techniques, will travel.



A regular game location, from the first chapter of Down In The Dumps. These beautifully ugly static scenes are depicted in high resolution and with the full compliment of colours.



The gorgeous pre-rendered animation has its drawbacks, though. Try to pick up an object, and your sprite will wobble its way across the screen.

When *Down In The Dumps* first popped its garbage-encrusted head above ground last year, hopes were high that it would offer the next step on from LucasArts' acclaimed point-and-click adventures. After all, it's a cartoon graphic adventure where the plot, gags and animation really are on a par with real cartoons. And while not really the flawless gem it might have been, *Down In The Dumps* really isn't half bad.

Billed as an adult adventure, *Dumps* is a game of gutter-level humour – in a very literal sense – and dazzling animation. The story concerns the Blub family, unruly occupants of an interplanetary craft. Unwittingly they get in the way of an evil gang of aliens during a robbery. Both groups crash Earthward, eventually settling in a rubbish tip somewhere near New York. With their spacecraft in tatters, and measuring less than an inch height, the Blubs have their work cut out if they're to escape the dump, the evil aliens and planet Earth – particularly since the family members all hate each other.

You get to control one member of the Blub family at a time through the game's four chapters, attempting to outwit the aliens and other denizens of the dump in a bid to collect various space craft parts and solve regular adventure game puzzles. Except it's not just the subject matter that makes *Dumps* a bit different. Taking its cue from the surreal sight gags and situations used in Tex Avery

and Warner Brothers cartoons, the designers have come up with various problems that may defy regular logic but make perfect sense in the world of cartoons.

What's really unusual about the game is the graphic style it adopts. Sure, the pre-rendered backgrounds look lovely, but it's the way they connect that's really impressive. Direct a character to exit the screen via the rear, and the game will actually track their movement through the game world to the next location. The whole environment actually works as 'pockets' of action in a fully-

rendered 3D world. And because all the in-game stuff has been constructed from pre-rendered backgrounds and sprites, developer Haiku has been able to bring in cut-scenes without any change in style.

Sadly, this reliance on pre-rendered animation has

an irritating side effect. Instruct a Blub to use an object and your sprite will wobble around the screen, eventually settling to a point where pre-shot versions of their images can be substituted. This switching between real-time and pre-rendered sprites just doesn't make sense, and thanks to those delays and a noticeable difference in quality between the two styles it's a cheat that's all too visible.

More crucially, the script isn't quite up to LucasArts' calibre. There are gags and surreal asides aplenty, but rarely do they induce belly laughs – this is a game that's more fun than funny, but *Down In The Dumps* is certainly the best rubbish money can buy. (MR)



A subtle take-off of a certain Disney movie, perhaps?



FLIP OUT

Tile flipping in a science fiction guise – the post-Tetris puzzle scene gets weirder ever day.

Tetris is a work of art. This much is fact. A game of such simplicity which demanded good reactions, foresight and spatial awareness from the player is a real one off. Tetris has no real ancestors, yet it seems to have spawned countless clones. Sadly, most have either lacked the design or overcomplicated the central theme. Witness *Welltris*, *Wordtris* and *Endorfun*. Only *Zoop* has proven anything like enduring, and even that lacks the genius spark that marks Tetris out of the pack.

Flip Out goes for a tile-flipping sort of premise, but works overtime to make the concept as exciting as possible. The playing arenas showcase various cool graphical themes, and a science fiction angle provides an excuse to include cute rendered alien onlookers – who soon begin to actually interact with you, providing an extra challenge. Then there's the near brilliant idea of adding a juggling element. Not only does *Flip Out* demand that coloured blocks are placed on the correct coloured pads, you see. There's always one extra dummy

block, which means ensuring that one of the blocks remains in the air at all times. Now that's clever.

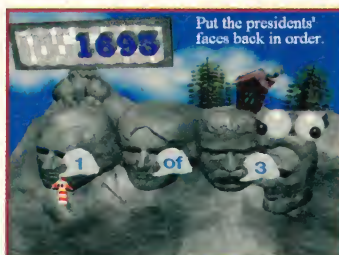
Sadly, the idea runs of out steam fairly quickly. Pretty soon you'll find yourself shuffling all kinds of objects rather than plain coloured blocks, battling against interfering aliens all the while. But instead of giving the game a touch more spice, these elements merely add excess baggage. They also start to irritate pretty quickly.

Even the high skill level options are a cop out, removing various visual cues to the point where only a perfect memory and a huge wad of luck will enable you to complete the harder levels. That slim, but entertaining basic idea is soon crushed under the weight of so many 'clever', extras.

It soon becomes pretty obvious why there are no lives to lose, or game over message to cut things short. *Flip Out* simply punishes failure by repeating the same level again – anything harsher could turn mild-mannered gamers into PC-trashing, axe-wielding psychos. Maybe that's actually why it's called *Flip Out*. (MR)



When gangs of the creatures roam the play area it really gets complicated.



Rushmore is harder if you don't have a grounding in American culture.



Later levels drop the three by three grid format for much more challenging layouts. As you move on, the locations get more and more bizarre too.

DEVELOPER
Beam Software
PUBLISHER
Melbourne House/E.A
CONTACT
01753 549442
PRICE
£39.99
MINIMUM SYSTEM
486/66, 8Mb RAM, 8Mb disk space, double speed CD drive, all Windows soundcards

Great for five minutes. After which it becomes unfair, monotonous, and infuriating.

PC REVIEW VERDICT

5

CD-ROM Today

Fun School-FREE!

PLUS! software-packed second disc

Get full versions of the best-selling Fun School 4 educational trilogy free with issue 37 of CD-ROM Today. Brilliant!

Another great CD-ROM Today double-disc bonanza!

PLUS: 1,000 titles rated in our buyer's guide; the latest language-learning software tested; a great new James Bond disc, David Attenborough's Antarctic and Dorling Kindersley's gripping EarthQuest.





You play Miette, whose task is to find the city's lost children. Presumably she's already tried the local video arcade.



THE CITY OF



All the junk floating about in the murky waters means it's unlikely this guy will catch any fish. Perhaps Miette can help him.

DEVELOPER

Psychosis France

PUBLISHER

Psychosis

CONTACT

0151 282 3000

PRICE

£39.99

MINIMUM SYSTEM

Pentium 60MHz, 8Mb RAM, 42Mb hard disk space, quad-speed CD drive, DOS 6.0, Windows 3.1 or 95

Stunning graphics and a delight to explore, but the novelty soon wears off.



PC REVIEW VERDICT

LOST CHILDREN

Bringing a movie to life on the PC screen is no easy task, especially if it's weird, French and made by Jeunet and Caro.



Based on a French film and developed by Psychosis France, the sets are a touch Gallic.



And you thought your PE teacher was weird? Meet Pieuvre, your taskmistress(es).



Beautifully lit, moody scenes are coupled with a mesmerising film soundtrack.

THE GAME OF THE FILM

Released in 1995, *The City of Lost Children* was a French movie by the directors of the acclaimed *Delicatessen* – Marc Caro and Jean-Pierre Jeunet. The game's lack of a strong narrative mirrors that of the film, which some critics said was dramatically uneven, despite being a visual tour de force on the scale of productions like *Blade Runner* or *Fantasia*.

Sinister events are afoot down at the docks. Burly men prowl streets around the harbour in the dead of night looking for stray kids, who they bundle into vans and drive away at high speed.

This is your menacing welcome to *The City of Lost Children*, a 3D adventure game published by Psychosis and based on the acclaimed French movie. You control Miette, a streetwise 12-year-old orphan girl, who is forced into carrying out nefarious acts by the odious schoolmistress Pieuvre, who is actually a pair of Siamese twins.

The action begins in the classroom, where Pieuvre instructs Miette to steal money from the cashier's hut or else be punished, so off you go, picking up

objects and using them elsewhere in the classic adventure game tradition. Finding the things you need often involves changing camera views in most locations, but what you don't get – at least to begin with – is the big picture. As you're not given a sense of Miette's character or background, it's hard to get very excited about achieving such small goals as stealing cash. Instead, you're pitched straight into solving contrived

puzzles and basically left to get on with it. As Emma Thompson might say, "But, where's my motivation, darlings?!"

Solving puzzles forms the main basis of the game – the city itself is almost empty, save for a handful of characters, and there's little in the way of interaction with them. However, they do say more when you solve a problem, thus triggering a rendered sequence with beautiful 3D graphics. The other nagging irritations concern Miette. She's supposed to be a nimble thief,

but changing direction using the arrow keys takes an age as she has to go through a long-winded marching routine each time. And her habit of saying, "I can't do anything!" in a whiny voice will soon become irritating in the extreme.

...and the good news?

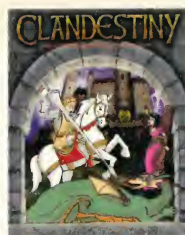
On the other hand, the graphics are first rate. The film's Artistic Director, Marc Caro, helped transfer some of the bizarre imagery to the game and, as a result, each location is a stunning 3D tableau, with architecture and ambience borrowed from the imaginations of Jules Verne and Charles Dickens and then given a surreal twist. The seaport is further brought to life by flickering lights, moving shadows, and the sounds of seagulls, barking dogs and tolling bells. To top this, music from Angelo Badalamenti's film soundtrack plays mesmerisingly in the background.

It's clear that more attention has been paid to the sound and graphics than to giving the game a strong narrative or making it fun to play. But when you're stuck, at least you can look round and enjoy the view. (GS)



Solve a puzzle to see a lavishly-rendered cut scene – here a watchman is murdered by an unknown assailant.

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Import your favourite *Sim City* landscapes, then set about saving them from disaster in *Sim Copter*. It's hard not to wish for missions that involve more than just travelling from A to B.



The smoke and fire effects are a bit feeble, but they provide the best missions in the game.



The night scenes work best, but you could really do with the spotlight in situations like this.



The best viewpoint, showing the rear of the copter, overlays the instrument panel on the screen.

DEVELOPER

Maxis

PUBLISHER

Maxis

CONTACT

0171 505 1500

PRICE

£39.99

MINIMUM SYSTEM

P75, 16Mb RAM,

15Mb hard disk space, double-speed CD drive, mouse, Windows 95, soundcard, joystick

The potential of a winner, but more of a blunt instrument than a flashing blade.



PC REVIEW VERDICT

AND THERE'S MORE

Prepare for further forays into full 3D interpretations of the *Sim City* landscape. Maxis currently has *The Streets Of Sim City* under development, which offers solo or network link-up road racing through the ubiquitous game world. Let's hope that Maxis sorts out a more fetching 3D system for this one.

SIM COPTER

Maxis' *Sim* series goes up, up and away, with turbulent results.

They don't come much stranger than this. Veering between inspired and insipid, half of *Sim Copter* goes great guns. Unfortunately, this half is joined at the hip to one of the most unattractive 3D systems ever, and a set of missions in which triteness races against boredom to defeat the game first. It's a testament to the successful half of the game that, despite a catalogue of flaws, *Sim Copter* remains fun to play. If only it lived up to its potential.

The idea is to take to the skies in a helicopter, navigating around maps which adhere to *Sim City* principles. In other words, you can import your favourite *Sim City* landscapes. Helicopters didn't do much in the original *Sim* games, so here the pilot is given a sort of 'emergency services and taxi driver' role, with you rushing to the scene of riots, traffic jams and fires, or carrying people, with suitable monetary rewards so you can upgrade that whirlybird.

So far so good. There's something exhilarating about soaring above city streets, weaving between skyscrapers, and watching

the day unfold below. Boats float on the sea, cows graze in the fields, even the cars follow the road networks intelligently. All seems peachy.

Until you take a closer look, and discover that the textures are appallingly coloured, most of the objects possessing Lego-brick simplicity, while the *Sim* citizens look as if they've been animated by a five year-old. And for every cool effect, like the copter blade whirr, there's a daft glitch such as the way shadows are drawn. All this is compounded by a remote camera view that gets confused when there's a building between the viewer and the helicopter, by a searchlight which doesn't accurately cast light onto objects and by a sluggishness on anything less than a Pentium 133.

Worse still, the mission types soon begin to irritate – they mainly involve flying to a



At this altitude the buildings look solid, and the far-off objects fade into the distance with real style.

destination and pressing a key to clear a traffic jam, call an ambulance or fire a water gun. It's not long before you're overcome by the desire to crash into vehicles and actually cause disasters yourself.

With a little more care and a looser approach, *Sim Copter* could have been a brilliant pastiche of

old TV series like *Airworld* and *Blue Thunder*, featuring white knuckle chases through the maze of buildings, state-of-the-art weaponry and all manner of bizarre ground vehicles with which you can interact. Instead it sticks to real life, without ever bothering to offer real helicopter control or the sort of visuals that might come within spitting distance of attractive. There is fun to be had ducking under power lines, landing on rooftops and putting out the occasional fire. And there is a certain kick to be had from seeing your *Sim City* creations brought to life in 3D. But then again, it's hard not to lose heart when you think of just how good *Sim Copter* could have been. (MR)

It's hard not to lose heart when you think of just how good Sim Copter could have been.



TROPHY BASS 2

Do you wear a baseball cap, shout lots and like fish? Read on...



Cast your lure into the brown (or sometimes blue) water.

Fishing. A pastime enjoyed by a great many. And not only in real life – the PC has had offerings such as *Fly Fishing* by JR Hartley, *The Art of Coarse Fishing* and *TNN Outdoor Bass Tournament 96*.

Sierra's original *Trophy Bass* was a program noted for its innovative virtual lakes, but marred by its annoying controls and sadly this game offers exactly the same features, while also managing to duplicate some of the mistakes. You fish in a simulated lake and can select absolutely everything about your tackle – the type of rod, the lure and even the casting style are changeable. Of course, you'll need to be a fishing expert to understand how changing your gear will alter your chances of catching a fish. Alternatively, you can watch the tutorial videos that explain fishing in the disc's multimedia section.

Of course, without fish, there would be no fishing, and the fish in this game are some of the best ever. They behave realistically,

If you catch a big fish, waggle the mouse frantically until you've landed it.



swim away if disturbed and put up a realistic fight, though the way they pull doesn't really change between species. Where the fish are to be found differs according to the season, temperature and weather conditions – just like the real world.

Unfortunately, *Trophy Bass 2* shares annoyances with its predecessor. The method of casting requires no skill and catching a fish involves waiting for it to bite and then wagging your mouse while holding the left button until you've landed it. Thus, the artful technique that might have been involved is absent. UK fishermen will probably prefer something more familiar than the bass of North America anyway. (AC)

DEVELOPER
Dynamix
PUBLISHER
Sierra On-line
CONTACT
0118 920 9100

PRICE
£39.99
MINIMUM SYSTEM
P60, 8Mb RAM, double speed CD drive, Windows 95, SVGA

PC REVIEW VERDICT
A nice-looking but flawed alternative to the real thing, for enthusiastic experts only.

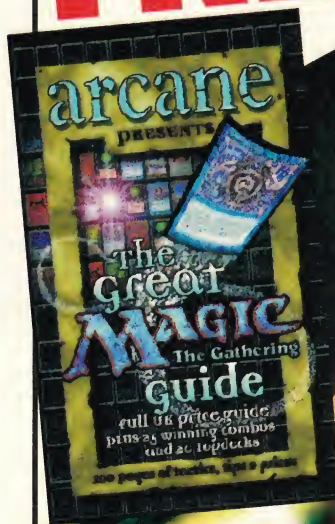


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9

Myst meets the surreal and the absurd in 9.

DEVELOPER
Tribeca Interactive
PUBLISHER
GTI
CONTACT
0171 258 3791
PRICE
£39.99
MINIMUM SYSTEM
486/66, 8Mb RAM, 8Mb
hard disk space, double
speed CD drive, mouse,
Windows 3.1 or higher,
all Windows soundcards

A traditional
adventure
beneath Weirds-
ville visuals, but
pretty neat.



PC REVIEW VERDICT

ROCK DUDES



Fans of Aerosmith will be relieved to hear that 9 doesn't mark the band's sole appearance this year. A new album, *Nine Lives* has finally been recorded, and is due for a release at the end of the month. Tracks on the record include 'Ain't That A Bitch', 'Pink' and 'Falling In Love (Is Hard On The Knees)'. Those, crazy guys...

Robert De Niro leaves the mean streets to produce an arty adventure starring Cher, Aerosmith, and James Belushi.

Travis Bickle in a shoot-'em-up this isn't. Hell, 9 doesn't even feature the legendary De Niro face and mole combination in any guise. Instead, this marks the debut of Tribeca Interactive, a development company he co-owns – the game itself relying on the voice talents of several other Hollywood players to give that all-important gloss to the strange goings on. And boy are they strange.

The setting is the Last Resort, once a place of recreation for the artistic elite, now a rundown, decaying maze of a mansion, left to you by your recently-deceased Uncle Last. The underlying idea is that you restore the place to its former glory, with exploration, experimentation and puzzle solving forming the real bulk of the game. The effect is somewhere between the fanciful nature of *7th Guest* and the more traditional *Myst*. In truth, though, 9 lacks either the depth of the latter, or the complexity of the former, opting instead for humorous brainteasers. But what 9 does have is style. In large amounts.

Artist Mark Ryden has created the in-

game visuals, a brilliantly twisted mix of surrealism, playfulness and plain strangeness. It's the kind of effect he's achieved before, having previously created album art for the likes of the Screaming Trees, Red Hot Chili Peppers and Michael Jackson. But here he's actually created a very individual, but strangely cohesive, game environment. His artistic visions, in conjunction with inspiration from Aerosmith's music, have been used to come up with an adventure that's not so much straying off the beaten track as permanently off-roading.

And then there are the curious characters inhabiting the Last Resort. Christopher Reeve and James Belushi provide the voices of two inhabitants, while Steve Tyler and Joe Perry take on the role of the Toxic Twins – Perry only 'talking' via his guitar. If an idea is worth doing, it's obviously worth doing strangely.

Peek past all this

oddness, and the game style is surprisingly familiar. Those puzzles are often Simon Says or pattern matching-style exercises, while the more object-led ones really do follow the basic collect-and-use structure of regular adventure games. Even so, it's hard not to get swept away by the spirit of 9, such is the bizarre nature of the game world.

9 swaggers with all the self-importance of a whole new game format, when it's really anything but. But like the best of Hollywood, the high-gloss style and bewildering artiness of the thing somehow conspire to make the game much more likeable than it's got any right to be. Yes, it's another pre-rendered adventure game, the flimsy story held together by little more than arresting visuals and a barrage of puzzles. But when you've got sensory overload from Ryden's visuals, Steven Tyler getting crazily melodramatic, and Cher huskily talking to you about saving your game to disk, such deceptions don't really seem to matter. (MR)



The quality of the in-game art is well above the usual adventure game stuff. Weird symbolism, strange angles, and a non-computerised look really set the tone.



Check out the voiceovers by James 'My Brother Was Pretty Good' Belushi.

ECSTASY

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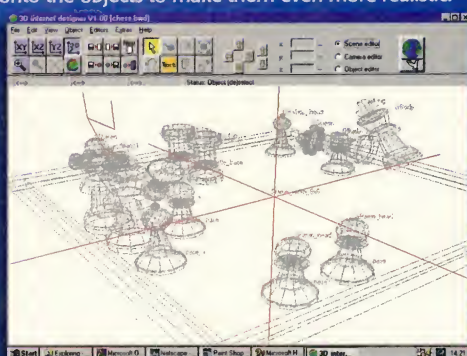
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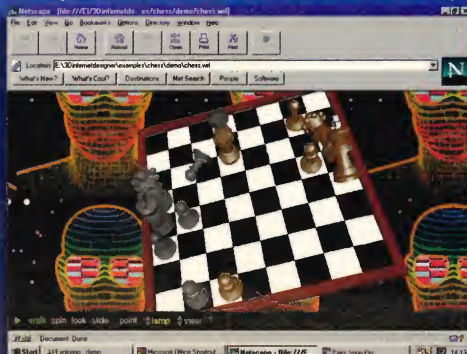


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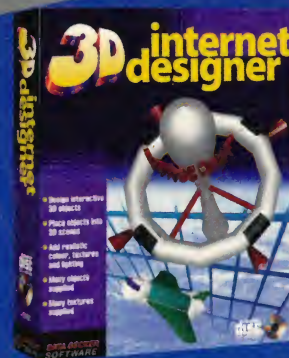
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Cutting through the big blue, hunting for Chinese Han class subs, and generally flexing those nuclear powered muscles – if only Tom Clancy SSN had more of the excitement of naval warfare.

TOM CLANCY: SSN

The self-styled master of the techno-thriller goes interactive with a submarine simulation that's less than seaworthy.

Read a Tom Clancy novel and you'll understand what's it like to live in a world where technology takes precedence over people. His books are brimming with technical jargon, but woefully low on emotionally engaging characters. So it's ironic that his first foray into the world of videogaming should be so technologically unsound, creaking under the dead weight of an outmoded graphics engine and floundering when it comes to offering you much more to do beyond pootling around in the sea, firing the occasional torpedo.

This is something of a shame, because despite the fact that any submarine simulation is going to play rather like a sluggish, poorly handling flight sim, the potential is there to write a truly great game around such

limitations. Think *Das Boot*. Think running silent and deep right below an enemy boat, with only the sea's thermal layers protecting your 360 feet of nuclear powered hardware from detection. With the right mission structure, a graphic engine capable of really bringing an underwater environment to life (as in Bullfrog's *Creation*, for instance), and a design which offers a balance between real-life complexities and real immediacy, the submarine sim could be something genuinely desirable. Hell, MicroProse's *Subwar 2050* almost managed it. But no, *Tom Clancy SSN* sinks its good ideas before they even get a chance to engage you in finger-gnawingly tense games of cat and mouse.

The actual premise is as well handled as you'd expect from a thriller writer, depicting

an increasingly unstable Chinese government, striking against the Americans in an attempt to gain control of oil reserves. And while it contains some pretty hammy performances, the use of fictional news sequences between missions really does add impact. But while the complexities of controlling all aspects of a submarine are simplified to just about the right level, the actual presentation of the game has all the allure of a spreadsheet. And the excitement generated by coming into contact with enemy vessels is soon wasted thanks to a repetitive structure and an unsatisfying attempt to depict the murky ocean. Surprisingly good subject matter, then. But next time, Mr Clancy really ought to think about a naval exercise with a few more bells and whistles. (MR)

DEVELOPER
Beam Software
PUBLISHER
Melbourne House/EA
CONTACT
01753 549442
PRICE
£39.99
MINIMUM SYSTEM
P60, 8Mb RAM, 10Mb
hard disk space, double
speed CD drive,
mouse, Windows 95

PC REVIEW VERDICT
The germ of a great game crushed by repetitive missions and a poor engine.

5



Crashing to the surface, the game's graphics take a turn for the better. Alas, most of the game takes place under water.



The bubble effects are pretty cool, but the seabed detail is poor and the 3D very slow.



Cruising above the first 'thermocline' our sub gets an allied ship in visual range.



It's a direct hit, smashing the hull pretty badly. At least the engine is still OK.



PRINCE OF PERSIA COLLECTION

When the *Prince of Persia* was initially released, it went down like a particularly stunning Persian rug at a classic carpet convention. What stood out was its animated lead character, who moved just like a real (if tiny) person. We're not talking *Tomb Raider*, *Prince of Persia* was a 2D platform game, in the lineage of the classic Atari console game *Pitfall*. It's an Arabian adventure centring on a mixture of sword fighting and spell-casting above pits filled with snakes. Unfortunately, the sequel just dressed up the Prince in new clothes. Fresh levels and more dangerous traps couldn't disguise a game that was already beginning to date. Now, both games are just too old. If you're a Jordan Mechner fan (he designed the *Prince of Persia*), look out for his new game, *The Last Express*.



Hailed as an innovation in its time, *Prince of Persia* has sadly dated rather badly.

Broderbund, £10,
01429 273029

REISSUES

Spring is in the air, so why not clean out your loose change on the latest budget games?

SCREAMER

Some people were disappointed that the sequel to *Screamer* wasn't an outstanding improvement on the original. That's not a reflection on *Screamer 2*, but on the sheer class of *Screamer*.

An unashamed arcade racer in the *Ridge Racer* lane, *Screamer*'s as good-looking and playable as you could wish for. If you've got 12Mb of RAM, you can even play in SVGA. You've also got a choice of cars and difficulty levels, multiple camera angles and network play support.

Okay, there are only six tracks and it's all a bit easy once you get the hang of driving, but for the price of three gallons of petrol, you can't complain.



White Label, £9.99, Tel: 0171 368 2255

FLY FOR LESS

DAWN PATROL

An unusual flight sim, *Dawn Patrol* puts you at the centre of an interactive novel. You choose a pilot, read the relevant chapter then take to the SVGA skies. Like *Flight Unlimited*, it's a gorgeous ride and what's more you can shoot at other planes too.

There are over 90 missions in all, and 20 different aircraft to fly, but without a solid campaign structure there's a lack of long term involvement. Since this release of *Dawn Patrol* also includes the multiplayer patch, you might not find that a problem.

White Label, £12.99, Tel: 0171 368 2255

FLIGHT UNLIMITED

Now that PCs have caught up with *Flight Unlimited*'s higher resolution modes, it's a bargain at a mere tenner. Its photo-realistic terrain and incredibly accomplished flight model

turned heads on release and knocked Microsoft's *Flight Sim 5* into a nose-dive.

The presentation is still remarkable today, and twice as smooth. Don't expect dog-fights though -- *Flight Unlimited* is a civilian affair so travelling in gliders and Cessnas is the order of the day. There's an aerial stunt training simulator included too.

All in all, *Flight Unlimited* is perfect for those chilly days when you can't quite get the Lear started.

White Label, £9.99, Tel: 0171 368 2255

CIVIL WAR

Like its peer *Fields of Glory*, *Civil War* achieved success by dumping the genre's traditional hex maps and discovering that wargames can appeal to more than just wargamers. Don't expect *C&C* though -- *Civil War* is as fiddly-looking as the uniform of some bizarre military junta. You take the side of either the Confederate or Union forces and change, if not the course of history, then at least the odd battle. A good introduction to a vanishing breed of game.



Fly the flag for the Yankees with *Civil War* from the White Label.

£12.99, Tel: 0171 368 2255

BUDGET NEWS: RETURN TO PLANET ID

Perhaps it's due to the departure of John Romero and Jay Wilbur, but there has been some navel-gazing at id HQ recently. The result of this soul searching is the *id Anthology*, a boxed set of all its output. It's only available at Virgin Megastores and it costs £70. That gets you *Wolfenstein 3D*, all the various *Dooms* and *Doom expansion kits*, and the registered version of *Quake*. The once astounding *Wolfie* now seems incredibly dated, but the rest is a fun slice of history. And *Quake* itself would cost you more than half of the asking price. You even get dog tags and posters. Looking at its output, you quickly realise how important id has been to PC gaming. Let's hope this bundle is an Oasis style cash-in rather than a Take That style swansong.



Do you remember where you were when you first saw *Doom II*?

DESCENT

They're still cloning it – proof that *Descent* isn't past its sell-by date. The premise is simple. You negotiate tunnels to reach a central reactor core, damage it and then escape before the core detonates. Hindering your progress are scores of uncannily clever robotic guardians. Compared to *Doom*, *Descent's* engine hasn't suffered too much over time. Unlike the 2D blasters, it was always a full 3D game and the engine's still nippy. Indeed, an overhauled version powers Interplay's new RPG, *Descent to Undermountain*, a demo of which you'll find on CD REVIEW.



More subterranean bangs for your buck than the Seven Dwarf's on a mole hunt.

WORMS UNITED

A year ago, the admission that you had worms brought not yelps of disgust but squeals of delight. Team 17 deserves the praise for this stark turnaround: *Worms* is simply one of the most engaging two player games on the PC. You control a highly armed mob of worms who lob incendiary devices at an opposing mob. Worm and world are obliterated in the process. While the basic game goes right back to *Tanks* on the BBC Micro, *Worms* remains appealing. This reissue comes with the reinforcement disc – a mixed blessing since the AI isn't great and a tenner for *Worms* would have been a bargain.

Interplay, £9.99, 01628 423666

Ocean, £30, 0161 832 6633

★ BARGAIN OF THE MONTH ★

TOOTAL INSANITY - STAR TREK: THE FINAL UNITY, RAC RALLY CHAMPIONSHIP, PGA EUROPEAN TOUR

"Phew, what a scorcher," we'd say if we were a tabloid newspaper reviewing this boxed set on a particularly hot day. As this is PC REVIEW, we'll simply say that *Total Insanity* is a sane and sensible purchase. Indeed, we might wonder whether Europress has lost its marbles. After all, *Rally Championship* has done outstandingly well, and even though the RAC rally itself lies six months behind us, it's hardly ready for the scrap heap. EA's *European Tour* lets you swing club around the continent in style, whilst *Star Trek: The Final Unity* throws you into the deep end with Picard and crew (though sadly you can't do much once you're there.) An odd mix, but great for new PC owners.

We gave RAC Championship Rally a six back in Issue 61.



Europress, £44.99, Tel: 01625 859333

RETRO PERSPECTIVE

With *Prince of Persia* out on budget, we took a look at its creator, Hollywood insider Jordan Mechner.

Are you proud of *Prince of Persia*?

Yes, especially the original 1989 Apple II version which is still my favourite. I loved trying to push that machine. You ended up writing every scrap of code yourself, practically a lost art today. I'm also proud of the game design. If you allow for the lack of technical razzle-dazzle, it actually holds up quite well today. It had a nice progression of difficulty, the way it kept recombining a few basic elements in different ways to create new and harder puzzles. And the controls felt good. Yes, I still like it!

But did *Prince of Persia* change video games forever?

I wouldn't say so. It didn't have any new technological innovations, like 3D texture mapping in *Doom*, that everyone could start imitating. If it did have an impact it was more subtle. I was really pleased to read in an interview with the *Tomb Raider* team that they named *Prince of Persia* as an influence. For my part I got a lot of ideas from a game called *Castles of Dr. Creep* on the Commodore 64.

Would you do it differently today?

For the last few years, I thought it might be fun to go back and revisit *Prince of Persia* as a 3D game. But then I saw *Tomb Raider* and really, they've already done it and gone beyond it as well. My own work seems to be going in a different direction.

What are you working on now?

The Last Express. I hesitate to call it an adventure game because that suggests a certain static quality that we've gotten away from. The story takes place on a train crossing Europe on the eve of World War I. It is a real-time adventure. You move through the train using a point-and-click 3D interface; but if you just stand there, life swirls around you. The passengers have their own lives, independent of the player. It's very difficult to describe, you'll have to play it yourself to see what I mean!



Jordan looks suitably mean and moody.



KNOW A GOOD TIP OR TWO? SHARE IT WITH THE WORLD AND BE THE SAVIOUR OF MILLIONS – BY WRITING TO US AT PC REVIEW, FUTURE PUBLISHING, 30 MONMOUTH STREET, BATH BA2 2BW. OR E-MAIL US AT PCREVIEW@FUTURENET.CO.UK.

PLAY TO WIN

When it comes to tips, we endeavour to bring you the latest and greatest ones for the newest games.

Using DOS cheats in Windows 95

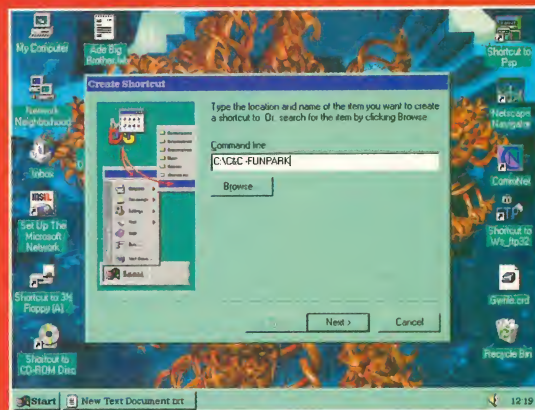
Windows 95 users may be having trouble running cheats that require the DOS command line to input extra parameters. Things like the *C&C Covert Ops* dinosaur cheat, for instance, require that you run the game with an additional command after the original filename. In this case you need to type: `C&C -funpark` at the DOS command line. If your games are set up to run from the Start Menu, you won't be able to input any extra parameters and use the cheats.

The way around this is simple. First click



your desktop, scroll down to the 'New' command and select Shortcut. Click browse and search for the game you want to cheat. After double-clicking its executable file (.EXE), the command-line will appear selected. Simply deselect this and type the cheat enabler after the filename. Click Next, give the shortcut a suitable name and press [Enter].

Now, by double-clicking this Shortcut in future, you'll have immediate access to the game, complete with activated cheat mode. This method can also be used in other circumstances, such as running your favourite Quake patch automatically.



A Windows 95 desktop? That's a bit serious for this isn't it?

"Hey loser, fancy another thrashing on Tuesday night?"

With Wireplay, you can challenge other gamers across the UK, multiplayer or head-to-head. There are 18 games so far, including *Duke Nukem*, *EF2000* and *Euro 96*, plus our own news service packed with the latest results, prize competitions, tournaments, leagues and all the industry news and gossip.



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Tomb Raider

They say the way to a man's heart is through his stomach. We have to disagree in this case. The way to a man's heart is to be an extremely fit young lady (albeit in a pixelated way) stuck in a glorious computer game.

If you're too easily distracted by the main character, help is at hand with this handy little cheat.

At the start of the game, take a single step forwards, one backwards and turn around three times on the spot. Now, you can jump backwards (for all the weapons) or forwards (for a level select).

XS

Despite being more than a little similar to both *SkyNET* and *Quake* (it has the androids of the former and the deathmatches of the latter), XS is a nice piece of work. Problem is, once you've seen all the levels, that's it.

Fret no longer, because here's your guaranteed path to the hidden levels. Simply enter your name as `PENSION` or `MEDICAL` and you'll be able to access the two new arenas.



More fun. Find two extra battle arenas with our special cheat for XS.



HyperBlade Cheat Codes

If you bought this game, you need help. And here's some now, in the form of some cheat codes, to be typed in during play. What luck!

MDMKSB	Immunity and increased attack
SHUIN	Enable hidden teams
GORILLA	Changes character to a gorilla
SPICYBRAINS	Turns character upside-down
POTATO	Decreases character size



Don't say we don't take care of you - here's some great cheats.



You can even change character to a gorilla, if you so wish.

Alien Trilogy

Those scary acid-blooded extraterrestrials are back and it's up to you to sort them out. If you're the type of wimp who needs help destroying an entire army of aliens single handedly, you might find these cheats useful. During the game, type in these commands to access various goodies.

COMEANDHAVEAGO	All weapons
IFYOOTHINKYOUAREHARDENOUGH	All weapons and unlimited ammo.
NADIAPPOVxx	Level warp where xx = Level 01-34



These are meant to be acid-spitting, deadly aliens? In that case, bring 'em all on.

Sim Copter

The early whirly bird gets the first cheats. Fly around a town doing good deeds and helping people out. When all gets to you though, you need a bit of help. And, what are we here for?

During the game press [Ctrl] + [Alt] + [X] to bring up the cheat prompt and then type these sentences to activate them.

Shields up	Invincibility
Gas does grow on trees	Infinite fuel
I'm the CEO of McDonnell Douglas	Allows you to access any helicopter by going to the catalogue and pushing keys 1-9
	Automatically takes you to your helicopter
I love my helicopter	Hold [Shift] to travel faster
superpowermultiply	Complete the current level
Been there, done that	Gives you the map. Predictably
The map, please	



"Yeah,
but this time
IT'S ME
who'll be
doing the
thrashing
Blogger."



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"By marrying the classic character progression elements of regular role-playing games with ultra-smooth point-and-click action, *Diablo* manages to offer the perfect blend of accessibility and depth. Proof, were it needed, that the devil gets all the best games." — PCR65, February 1997.

HOW TO SURVIVE DIABLO

Follow our in-depth tips to
live long and prosper in
the world of *Diablo*...

Part One

D*iablo* may contain the prettiest dungeons you've ever bashed but it's also home to the most hideous evil. This is no place for some charismatic hobbit with a certificate in 'listening at doors'. Only the experienced need apply.

But nobody wants to hang about at the bottom of the food chain for long. Scaling the Level ladder as quickly as possible is the only way to reap *Diablo*'s rich rewards; and that means staying alive...

Living long enough to accumulate experience is partly a matter of hitting the right balance of equipment and training, while a dash of entrepreneurial flair always helps. But, in *Diablo*, there's only one way to get experience and that's kill, kill, kill.

1 ASSAULT COURSE

No matter which class you choose, successful hacking and slaying relies on mastering a few key moves and survival strategies.

Don't get surrounded – Inevitably, if you give somebody your close personal attention you can teach them a damn good lesson. But try to block book your opponents and you will suffer, for if you are hit while attacking your blow is checked. A group of four skeletons can strike you constantly, preventing you making a single riposte. So always try to fight on as few sides as possible. Therefore...



It's a lonely life in *Diablo*. You'll feel it most when completely surrounded.

Choose your ground – Especially on the early levels, clever positioning is all against adversaries who aren't too clued-up. Cut down the angles. In large rooms, back off into the corners, which protects you on two sides so you can concentrate on slashing to the front. When entering a room, don't steam into a big scrum. Use door and archways to funnel foes to you in an orderly queue.

Interior design – For dungeon dwellers, the denizens of *Diablo* are easily confused by the fitted furnishings of their habitat. They seem better adapted for the Gobi desert as it takes them an age to remember how to get past sarcophagi and chests. By using such fixtures to slow up your enemy's advance, you can pepper them with arrows or mug a lone straggler. Often a quick dash around a corner will cause a huge wad of beasties to split up into smaller, more easily digestible chunks. Moreover, when dealing with creatures with ranged attacks, you can take cover behind sarcophagi and pillars.

Common sense – Use the keyboard. In combat it can make the difference



Diablo won our coveted Game of the Month Award in Issue 65.

between, well... life or death. *Diablo* enables you to define your own shortcuts, so your fave healing and attack spells plus a mana or health potion are just a key press away. And remember, it's ghoulies first then gold. Once the ghost is cleared you can run the mouse all over the screen for that tell-tale glint of blue.

Running away – Always know your escape route for those flight-beats-fight occasions. Don't panic and run blindly into new areas. You'll only find more monsters. When scarpering through a door try closing it. Most monsters are like dogs, they can't open them.

Big fairies – During a spot of bother,

Arnold Schwarzenegger would blend in seamlessly in *Diablo*. Yet another horde lies dead at your feet.



Looks like the perfect place for a quick breather before slashing more baddies.



Another character for you to interact with. No, put the weapon away!

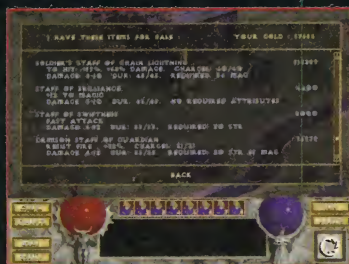
Sorcerers and Rogues need to be particularly fey. Don't try anything head on if you can help it. Fire at creatures through portcullises and grilled windows. Lure baddies into rooms with windows, then lock the door and blast them. Try to confuse them on stairs and then lay into them. No dodge is too low.

2 TOP OF THE CLASS

Once you're on the Level escalator the trick is to work out where to stick your bonus attribute points so you keep rising fast. That choice depends on your character class.



There are some great names circulating the *Diablo* universe.



You don't have to scavenge for all items. Some can be bought.

Now, the strengths and weaknesses of Conan the Barbarian as opposed to Paul Daniels are plain enough. The key question is, is it worth trying to pump up your character's deficiencies or should you just keep exaggerating their best features?

To be frank, opinion is divided, so most players stick with the method that makes them feel most secure. But, lo and behold, a balanced stat building strategy seems to work best. The crucial factor is that the Experience system is progressive, like PAYE. Initially you'll be hitting the next level every 1/2 hour but as you power up the scale, level increases become fewer



Not all characters in Diablo are out to kill you. Some can help you too.

and further between. Moreover, on the early levels the comparative strength of your major attribute should see you through. But you'll need to be more skilled all-round as *Diablo's* fiends become harder and more intelligent.

Therefore, work on your weaknesses first while the points are free and easy, although you should still bung a point onto your main attribute per level, just to get by. When it hits 80 (by whatever means) leave it for a while and concentrate the rest of your points



Diablo is not the place you'd choose as a holiday destination.



Acid Beast sounds like the kind of creature you don't want to hug.

on maxing out your minor stats.

It's unwise to ditch the strategy for short term gain. Magic stat-raising items can usually be relied upon to make up for characteristic shortfalls. For instance, it's advisable to always sport a +magic ring or amulet. When you find a spell book beyond the range of your magic capability, whip out the item and raise your powers accordingly.

By level 26 it'll take several hours of play to gain a level, so characters will probably raise stats more by elixirs than by levelling. The witch on the east side (right) of the village has a good supply.

Sorcerers should concentrate most on strength after their magic plateaus at 80. Then with a few choice magic items they can wear any armour. Don't worry about vitality – Sorcerers are sick old men and there's not much you can do about it. Instead, cast the mana shield spell whenever aggro threatens. Your mana is added to your health and even low level sorcerers run around with 200-300 mana in comparison to 40 health. Consequently, fill your boots with mana potions.

Warriors should focus on their dexterity and vitality. Rogues are Jacks Of All Trades and so should spread points evenly over their weaker stats.

3 TOOLS OF DESTRUCTION

Early on, when you need all the help you can get, your choice of

weapon is critical. Each piece is a trade off between swinging speed and damage rating. For example, you can go for quick slashes with a dagger or one almighty skull splitter with a big axe. Your cruel hurty thing of preference will probably be a matter of personality. The Rogue for instance has a high dexterity



The Mad Man was no match for our intrepid hero. He proved to be unconnected with the 70s band too.

and mediocre strength. Thus they're probably better off with a sword where their speed and accuracy can tell with quick, precise thrusts.

However, choosing the correct weapon vs monster is vital. The early levels are choked with skellies and zombies. You can stab them all day with a sword and make little impression (internal organs not being a factor) but switch to a blunt weapon like a mace and it's bones all round.

A golfbag of weapons to suit any occasion is therefore advised. Space permitting. Warriors, for example, should always carry a bow as a secondary weapon.

Two-handed weapons like axes aren't worth the trouble. Shields soak up a lot of damage, especially from ranged fire, and with a piece in each hand you can have two magic modifiers instead of one. You know it makes sense.

4 KNOW YOUR ENEMY

Studying the behavioural patterns of monsters can improve your life expectancy dramatically. We all know that puckering up, while staring out a seven foot skinhead with all his mates watching, is bad for the health points. The same is true in *Diablo*. Skelly archers, for instance, will stay in one place and wait for you to attack. So you can run away from them with complete confidence.

Goatmen, however, will manoeuvre for the best shot. Hence, stick your head into a room full of goatmen to lure them out in manageable numbers, then perhaps picking them off one by one as they chase you round a corner. When fighting cannibals like the Scavengers or Shadow Beasts move near a corpse, they'll stop to examine or even eat the



Running away is a tactic not to be discounted at any time.

body. At the same time, multiple clicks on cows can yield interesting results.

5 STAIRWAY TO HELL

Don't bite off more than you can chew. Here's our guide to what level you should be on before entering certain domains of *Diablo*.

The Church - Dungeon Levels 1-4 - A doddle.

The Catacombs - Dungeon Levels 5-8 - Your character should be level 8.

The Caves - Dungeon Levels 9-12 - To the left of the town across the bridge, you have to be level 13 to enter.

Hell: it certainly is! - Dungeon Levels 13-15 - Everything is required to live - you must be level 17 to enter, but level 22 ideally. Unless you like dying that is.



Bob had an uncanny feeling that he was being watched...

NEXT MONTH

We'll delve into the arcane mysteries of trading, spell strategies, multi-playing and even, gasp... cheating.



"If Microsoft had developed C&C, Red Alert would be Command & Conquer 97. And that's not good enough. Revolution is the cause, not evolution. We don't want Bat out of Hell 2, we want a Sergeant Pepper or an Achtung Baby. We demand that C&C 3 astounds us." — PCR63, Christmas 1996.

C&C RED ALERT

Having trouble getting rid of those pesky Ruskies? Make sure the enemies are dead not red with our tips guide.

PART 1

ALLIED MISSION 1

Shoot the charging enemy infantry. Next, use Tanya, the commando, to shoot barrels and the enemy, and set a C4 charge on the nearest power plant. When Einstein runs away, direct him to the signal flare and then load him into the helicopter.

ALLIED MISSION 2

Defend your construction yard with infantry to the south, southwest, and northwest of it. Build two pillboxes near the northern ore field, plus two to the south and west of your base. Take vehicles on the road south, use concentrated fire on the opposition and destroy the enemy ore truck. Move jeeps into the enemy base, kill their grenadiers, infantry and dogs, and go north to kill the unit at the pass. Finally, return to the enemy base and destroy all their buildings and personnel.

ALLIED MISSION 3(A)

Move the medic north, and keep Tanya's trigger finger firing to kill the soldiers attacking her. Heal her with the medic if necessary. Next, move west and curve south, shooting the enemy. Land an artillery shell on the transport dropping troops to kill them all. Move

south to the enemy base, using Tanya to kill the soldiers while your artillery pounds the flame turret. When you've killed the infantry, move east around the base and then north, shooting barrels to destroy the rocket launcher. Be wary of soldiers behind the trees, and take out the first bridge. Destroy the bridge at the top of the screen by shooting nearby barrels. Use artillery to destroy remaining bridges if Tanya happens to get stuck on an island.

ALLIED MISSION 3(B)

Move south, kill the soldier and shoot the truck. As it drives towards barrels, shoot them to destroy it. A friendly medic will emerge from a house. Go east, demolish the bridge and continue to the church. Next, shoot the infantry and head north across the plateau overlooking the enemy base. Your engineers are inside, so kill the nearest guard and shoot barrels as the others run for their barracks. Blow up the bridge in the north, then move east to some damaged tanks. Shoot barrels to blow them up, and use Tanya to destroy the flame turrets, healing her after each one. Move west, blasting barrels. Hit barrels to destroy the last bridge once the tanks arrive.



Why send in an army when they could have got 007 to do the job?



It seems that your commando Tanya will prove invaluable in all your missions.

ALLIED MISSION 4

First construct a radar dome and weapons factory to manufacture at least a dozen light tanks. Find the northern pass and mine it heavily. Place rocket infantry to the northwest of buildings the enemy are strafing. Take light tanks to the top of the screen and destroy the Soviet's ore truck by firing from below the plateau. Should that fail, go around the base into their ore deposit. Shoot attacking tanks with focused fire and squash infantrymen. Destroy the refinery and flame turrets and send out jeeps to mop up any remaining forces.

ALLIED MISSION 5(A)

Watch the dog patrols before sneaking the spy past them into the weapons factory. Use the truck to go to the prison compound and release Tanya. Send her to take out two SAM sites on the peninsula, then run up to the base compound, destroying its airfields. Take off in the helicopter when you've taken out all four SAMs. Reinforcements appear at the top. Engineers can capture the construction yard, weapons factory and barracks when buildings are down to 25 per cent health. Build a refinery, build tanks and deal with enemy reinforcements and its ore truck. Construct V2 rocket launchers to take out enemy bases, the wipe out everything with tanks.

ALLIED MISSION 5(B)

Send your spy into the enemy base through the eastern entrance. Enter the weapons factory and use the truck to

reach the prison compound. Release Tanya (use C4 explosive if necessary) and send her to destroy SAM sites before escaping in the helicopter. Use the reinforcements that arrive to kill tanks with focused fire, and crush infantry with light tanks. Use engineers to take over the construction yard, weapons factory, barracks, sub pen and power plant. Build an extra power plant, a refinery and a radar dome. Gather ore and destroy the first two enemy ore trucks. Build more refineries and tanks to finish them off.

ALLIED MISSION 6

Deploy your MCV where it lands, and build a power plant, barracks and refinery. Construct a pillbox to absorb enemy fire, using rifle and rocket units on enemy units and aircraft. Build medium tanks to attack the southern base, infiltrate the radar dome with a spy, capture the barracks with an engineer and build a naval yard by it. Block your coastline with tanks and get spies into the enemy sub pen and tech centre. Land 30 medium tanks in the north and work down, destroying all enemy units.

ALLIED MISSION 7

Kill troopers with jeep and tanks, deploy the MCV, and set up base. Scout ore fields to the east and south with the jeep, and build a pillbox to kill enemy troopers. Build another refinery, medium tanks and rocket infantry. Put rocket infantry where the ore truck travels and an AA gun north of your base. Use tanks and an engineer to



Building installations and setting up supply centres are as important as blowing them up in C&C Red Alert.



"That looks pretty impenetrable sir." "That's precisely why you and your men are going to storm it while I sit here sipping brandy and generally staying alive."

capture the southern radar dome and then sell it. Finally, mine the enemy ore fields and amass forces to destroy their sub pens.

ALLIED MISSION 8

Move the two destroyers by your power stations and train five rocket infantry. Get your MCV into the base. Clear the pass of enemy tanks with focused fire and move your remaining vehicles into the base. Place the construction yard inside, replace the destroyed advanced power plant and place an AA gun in the corner. Mine the northern and eastern entrance roads and construct a camouflaged pillbox by a northern turret. Build light tanks to line open parts of the coastline, and keep replacing detonated mines.

ALLIED MISSION 9

Build your base by the eastern ore deposit, construct 15 rocket infantry and place them in groups of five on the north shore. Build light tanks to block the enemy invading the beaches. Use a transport to carry a spy and an APC to the north east. Land the spy on the beach and move him across the bridge into the enemy base. Free the defector, Kosygin, from the headquarters

building and move him north. Land the APC and run over the dog by the top Tesla coil. Now get Kosygin to the transport and return him to your base.

ALLIED MISSION 10

Deploy the MCV in the protected eastern area, scout with light tanks and flee superior forces. Build a tech centre and use it to watch the enemy ore trucks. Mine ore deposits wherever possible. If ore trucks go behind enemy lines, build five helipads – destroying them takes two sorties. Gather ore and build a big horde of medium tanks while picking off units from the air. Build two pillboxes to clear enemy infantry, then rocket infantry for air defence, and place two AA guns in the north of the base. Focus fire on nearby Tesla coils, then attack the enemy tanks and base. The Soviets will launch missiles, so send a group of engineers in an APC to the control centre to capture it.

ALLIED MISSION 11

Move units south to the mammoth tanks, send a spy south to the exit, then use Tanya to explore the passages. Go north and east with Tanya and an engineer, kill soldiers and disable the first control centre. Go west and disable



Things can get pretty confusing very quickly. You'll need your wits about you.

the second. Head north to the flame turret, heal Tanya, and set a demolition charge on it. Heal Tanya and go north to the third control centre. Disable it with an engineer, and head east and north to disable the final control centre.

ALLIED MISSION 12

Deploy your two MCVs, build a base and two refineries. Drive a light tank to the east and north, where you'll find mammoth tanks. Mine their resting

locations, then get a tech centre to find the enemy ore truck. Build six helipads and destroy it, and use rocket infantry against aircraft. Use medium tanks to attack the base, and infiltrate the sub pen with a spy. Capture the construction yard and weapons factory. Send helicopters over the river to destroy the enemy ore trucks. Make some V2s to take out the Tesla coils, break a hole in the concrete wall on the base's coastal side, and send tanks to the northern section of your land mass to destroy the power stations. Construct a naval yard and a transport. If submarines attack, destroy them with V2s and helicopters. Land V2 rocket launchers on the Tesla coil island and destroy the SAM sites. Fire the sonar pulse. The V2 rocket launcher should take out some submarines – obliterate the others with helicopters, using your transport as a decoy. (GS)

NEXT MONTH

We complete the Allied missions, then tell you how to play through all the missions again as the Soviet side!

No angry Greek farmer's going to stop this convoy getting through.



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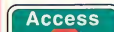
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[illegible]



You'll need a piercing and logical mind just to make sense of the encyclopaedia's front-end. Cue-cards would be nice next time.

MULTIMEDIA



No doubt you'll have read our Great Debate article this month (page 28) where two knowledgeable guests argue over whether or not multimedia is dead. An interesting discussion, to be sure.

As far as we're concerned, though, multimedia is pootling along just fine. The Encyclopedia of Science 2.0 for instance, heads up a series of new releases from Dorling Kindersley. Read our review of this masterpiece starting to the left. Next month we'll be bringing you VR Earthquest, the latest in DK's Eye-witness VR range.

More interesting to most, however, will be the Ultimate James Bond: An Interactive Dossier. The quintessential British secret agent has finally been honoured with his own CD-ROM. And indeed, we feel honoured to bring you the review over on page 87.

So, without further ado, I shall leave you to browse our Multimedia section. Hope you like it.

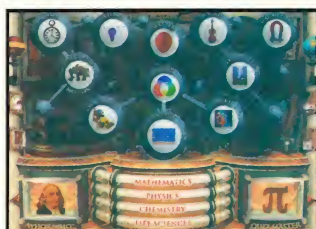
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ENCYCLOPEDIA OF SCIENCE 2.0

Is science all about smelly chemicals, bunsen burners and exploding test tubes? We certainly hope so...

When Stephen Hawking's (1942-) god-and-gravity thriller, *A Brief History of Time*, first topped the best-seller charts in 1988, science suddenly seemed hip. But in truth the Cambridge genius was just the latest of many recent techno-evangelists, ranging from the late Carl Sagan to Richard Dawkins. In all its history, science has never before enjoyed the unanimous support it does today. True, the dewy-eyed cheerleading of the 50s has been ravaged by bombs and BSE to leave something altogether more melancholy, but with the last Western faith in politics and religion ebbing away, science reigns as the sole provider of answers.



Every facet of physics is given the same priority. It's odd to see magnetism given the same weight as, say, time. Or gravity.

Dorling Kindersley's new disc, the *Eyewitness Encyclopedia of Science 2.0*, doesn't concern itself with the big questions though, let alone the answers. It sits resolutely in the fizzing and exploding school

labs of science, but that isn't such a bad thing. Even the great physicist Sir Isaac Newton (1642-1727) saw science as fun. "I do not know what I may appear to the world," said Newton, as apples fell all around him, "but to myself I have been only like a boy playing on the sea-shore, diverting myself in finding a smoother pebble or a

prettier shell than the ordinary." And as an entertaining and useful sea-shore of pretty shells, this is a resounding success.

But where to start? You can't just open up an encyclopedia and start reading, front to back. A decent encyclopedia should be like a rampant science fiction plant, sending off shoots and sprouts everywhere. One enquiry should lead to three more (just as happens in real-life scientific inquiry). After just a few minutes of exploring *The Encyclopedia of Science 2.0*, it's obviously going to score well in this respect. Whilst the wealth of information is partitioned by subject matter – such as Physics, Chemistry or the Who's Who of scientists – it's also well interlinked, so that the clear connection between, say, the biology of a plant and the chemistry of its photosynthesis is plain to see and investigate.

With this in mind, let's ask the encyclopedia a few tricky questions and see what we find hidden in its remarkable depths:



ENCYCLOPEDIA OF SCIENCE 2.0

FACTS AND FIGURES

To create a disc as comprehensive as the Eyewitness Encyclopedia of Science is a staggering feat. Impressive though the original Encyclopedia was, it's dwarfed by this lumbering sequel. Dorling Kindersley has packed in an extra 750,000 words of science lore, and beefed up all the sections (adding, for example, 165 eminent scientists to the Who's Who). But if that's still not enough to satisfy you, there's more. You can update your installation at any time via the Dorling Kindersley's Science Online Web site, straight from the main screen. Of course, you'll need Internet access to be able to do this.

Under the Microscope

You'll find all manner of tiny beasts in your own back garden, almost invisible to the naked eye. Put them under an enormous microscope though, and you'll discover they've got eyes, teeth and tiny feet. Under the encyclopedia's Matter Explorer you'll find out what they're really made of.

If the Matter Explorer was real, it would be the size of Cape Canaveral. It doesn't really exist – no microscope can look accurately show you quarks, as explained by Heisenberg. Alas, you can only study six preset material examples with the matter explorer – here's our favourite:

The aphids and their attendant leafy home are shoe-horned under the mighty Matter Explorer's lens.

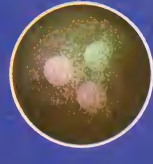
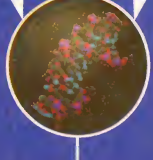
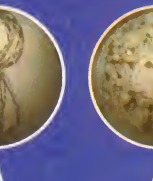
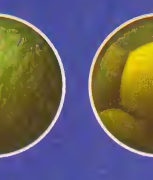
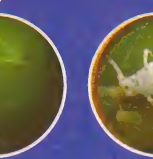
At six times magnification, the leaf still looks like a plant.

At x700, the respiratory stomata on the surface of the leaf become visible.

Magnified 20,000 times, a leaf's chloroplast looks somewhat like a bra.

Zooming in at x20,000,000, we see the writhing DNA coils of both leaf and aphid, packed with genetic code.

Finally, magnified twenty five million, billion times, the quarks of the aphid and the leaf glimmer and flick in lonely orbits.



And the aphid looks like, well, an aphid.

While cranking up the magnification reveals the aphid's insect eye.

At just half that power, you can see the cells of the aphid's eye, dotted with brainy cell nuclei.

Is the Earth flat or round?

While this debate raged for most of the Middle Ages, we expect the hi-tech encyclopedia to settle it in just a couple of clicks. We head straight for the Earth and the Universe section, where our planet appears as a convincingly round graphic.

Unfortunately, this proves the most compelling evidence we'll see. True, the Earth is presented as round, but one wag notes it could quite easily be a dinner-plate shaped planetoid viewed from above. Even a video of satellite imagery fails to convince us, since we don't pan around the globe, we just see it top down once more. Indeed, the words Round and Globe are distinctly absent from the text. We're referred to Galileo (1564-1642) who has plenty to say about circular orbits but suspiciously little to on the subject of football shaped planetary bodies.

Why do windows mist up?

The round versus flat controversy remains unresolved. It's clearly unfeasible to expect specific answers to our questions so instead, we'll look for good information that lets us reach our own conclusions. With winter yet to lose its grip, our next question is both topical and practical.

There seems no obvious place to start researching the phenomena of misty windows. We tentatively click on physics, but we're overwhelmed by the number of subjects on offer. Should we look for an answer under Heat, or are we more likely to find the solution under Atoms or Matter?

It's no coincidence then that Encyclopedia of Science 2.0 comes with an index. A search on 'condensation' quickly locates the relevant text. Jumping to the selected entry,

the encyclopedia opens up every section you would need to click through to reach it, which enables you to easily click backwards to read the related explanations.

It seems condensation on windows is caused by the temperature of the glass falling beneath that at which water vapour can exist as a gas. At this critical temperature, the kinetic energy that keeps the water molecules moving is weaker than the intermolecular bonds attracting those molecules to each other. As water vapour comes in contact with the glass, the intermolecular forces pull the molecules together, and the gas condenses to create the misty tableaux we take for granted.

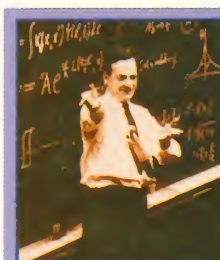
What is this gobbledegook?

It's all very well answering questions about water and windows. But how does the encyclopedia fare when we're after something more esoteric. We demand to know – just what is quantum mechanics?

We click on physics: remembering some Horizon program, we recall quantum mechanics has something to do with atoms. Luckily, we find a Quantum Theory icon.

It turns out that quantum theory is all about quanta, which are energy packets. As explained, it helps explain the theory of light, energy and radiation. Quantum mechanics is an extension of quantum theory, and explains why microscopic particles don't always do as they should, according to the classical physics of Issac Newton. The disc explains that matter can be thought of existing as either waves or particles, and then glosses over some related topics like Heisenberg's Uncertainty Principle.

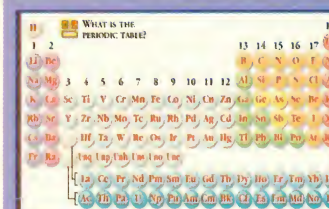
It's interesting stuff, but you



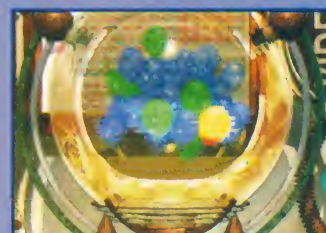
If you went to a school staffed by great scientists, Richard Feynman would be the cool one.



Is the Earth round or is it flat? We're not sure, and the encyclopedia has little to say on it.



Not an antique eating palace, but a way of classifying every element known to man.



Random apparitions appear, suggesting new lines of inquiry.

couldn't build a fast-breeding nuclear reactor with it. This no doubt makes it easier to export the encyclopedia to Iraq and China, but it also highlights its limitations. It's well-presented and comprehensive but to a degree that's at the expense of rigour and depth. You won't pass an A level with this.

According to legend, when Stephen Hawking published *A Brief History of Time* he was told that every equation he included would halve the sales. Dorling Kindersley obviously listened closely.

Who's top bod?

When asked to name the world's greatest scientist, most people suggest a physicist.

While Einstein, Newton and Hawking pull the crowds, other scientists are overlooked.

As the disc points out, biologist Rachel Carson's (1907-64) work on DDT arguably sparked off the entire green movement.

Alexander Fleming's (1881-1955) discovery of penicillin has saved countless millions of lives and Antoine Lavoisier (1743-94) virtually fathered modern chemistry when he explained combustion, refined gun powder and discovered and named oxygen and hydrogen as well as a host of other elements. Perhaps Charles Darwin (1809-92) is the only big hitter outside physics, but to achieve that fame he had to shake humanity's faith in itself to the bones.

To its credit, the encyclopedia only ranks scientists in as much as it gives certain individuals photos or pictures and a little more accompanying text. It's a shame there's no history of science, which might have run through the last two millennia and put some of the names into context. On the other hand, the CD-ROM has certainly benefited

from its tight focus. Perhaps the story comes from studying the science itself.

Basically, if you want to know anything about science, you'll find an introduction here. That's really about the best you could ask for. In the future, DVD drives might enable truly exhaustive titles where a whole subject, from GCSE to University degree level come on just a disc or two. The format of the *Encyclopedia of Science* lets you skim the surface of subjects without getting into the (relatively) complex explanations unless you choose to. Extra levels of complexity could be added quite easily, perhaps with warning signs to prepare the unwary user blundering in.

The encyclopedia isn't perfect. While there's a mass of illustrations (to the extent that unillustrated entries seem unbearably dull) there isn't a great deal of animation. The virtual molecules are an exception, but most of the movements seem to be in mathematics. The video footage is more equally distributed, with a slight bias towards biology.

As ever, there's not enough of it, and it's nobody's fault.

Another small criticism is that the disc focuses very much on pure science, without relating it to the everyday world. You'll find hardly anything about how your TV works or how coal is formed. For that you'll need to see DK's *The Way Things Work 2*.

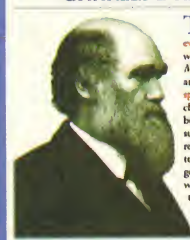
All in all though, the *Eyewitness Encyclopaedia of Science 2.0* has everything to recommend it. It's broad in scope, fun and the text is authoritative and reliable. There's few beards and none of the cheap bar charts redolent of old Open University broadcasts. And incidentally, haven't we done well to write an article on science without mentioning Einstein's famous equation relating energy to mass, $E=mc^2$?

Oops. (OB)

Battle of the Brains

CD-ROM, before you pall - whose the cleverest boffin of all?

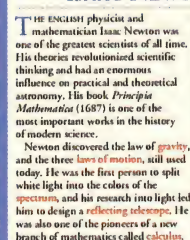
CHARLES DARWIN (1809-82)



THE ENGLISH NATURALIST Charles Darwin is celebrated for his theory of evolution by natural selection. This theory was published in *Origin of Species* by Means of Natural Selection (1859) and argues that the individual members of a species vary naturally in their characteristics. Those members that are best adapted to their environment will survive in the greatest numbers to reproduce and pass on their characteristics to the next generation. Over many generations, therefore, the species as a whole will evolve, becoming better adapted to its environment. Darwin's theory, often simplified as "the survival of the fittest," was held to apply equally to the evolution of human beings.

Darwin was clever, and invented the theory of evolution. But that was a bit easy really wasn't it? Still, he'd win battle of the beards scissors down.

ISAAC NEWTON (1642-1727)



THE ENGLISH PHYSICIST and mathematician Isaac Newton was one of the greatest scientists of all time. His theories revolutionised scientific thinking and had an enormous influence on practical and theoretical astronomy. His book, *Principia Mathematica* (1687) is one of the most important works in the history of modern science. Newton discovered the law of gravity, and the three laws of motion, still used today. He was the first person to split white light into the colors of the spectrum, and his research into light led him to design a reflecting telescope. He was also one of the pioneers of a new branch of mathematics called calculus.

Newton had luxurious Byronic locks for apples to fall on. He discovered gravity, then raked in cash at the Royal Mint.

STEPHEN HAWKING (1942-)



THE ENGLISH MATHEMATICAL PHYSICIST Stephen Hawking is at the forefront of fundamental scientific research. His work has built on the theories of relativity originally put forward by the German-born American scientist Albert Einstein (1879-1955). Hawking's explanations of the formation of the Universe, and of black holes in space, have become widely accepted among scientists the world over. Hawking's work is less well known outside of scientific circles than is his best-selling book *A Brief History of Time* (1988). This publication has sold 25 million copies, providing many with an introduction to quantum physics and relativity.

Stephen Hawking is a scientist's scientist. He's described the behaviour of black holes mathematically and made millions.

The Sum of Human Knowledge

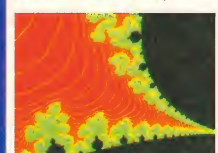
At the forefront of every branch of science, techniques are converging to mathematics. To achieve anything in physics these days you need to be a brilliant mathematician - the same is rapidly becoming true of chemistry.

While some scientists have criticised this so-called reductionist approach (particularly biologists), it's all pervasive. In contrast, the

Eyewitness Encyclopedia of Science 2.0 divides the sciences into four parts - Mathematics, Physics, Chemistry and Life Sciences - and gives them all equal standing. In Mathematics, you'll find just set and number theory, rubbing shoulders with the glamorous cousin chaos theory. What you won't find is an in-depth discussion of Laplace transformations or double differentiation.

FRACTALS

FIRST USED BY Benoit Mandelbrot, the word fractal is derived from the Latin *fractus*, meaning broken or uneven. Fractals are self-similar geometric figures, small parts of which look like the whole. Linearly self-similar fractals, like the Koch curve, look exactly the same



The Mandelbrot set
This nonlinear fractal is famous for the endless variety of its "organic" shapes.

when magnified. Nonlinear fractals, like the Mandelbrot set and the fractals of chaos theory, are infinitely irregular. When such fractals are magnified, characteristic shapes recur with slight variations.



Natural fractals
The bronchioles of the lungs have a fractal-like pattern.

Fractal graphics, as last seen on a student's t-shirt near you.

Differential Equations

A differential equation is an equation that contains derivatives, also called differentials. For example,

$$\frac{dy}{dx} + 5x = 2y$$

is a differential equation. The order of the differential equation is given by the highest derivative in the equation. For example, an equation containing only first derivatives, such as the equation above, is a first-order differential equation. If an equation contains second derivatives, such as

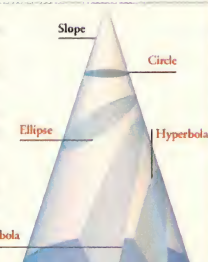
$$\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2x^2 = 4y$$

There are equations lurking deep in this CD-ROM. Quick, get behind the sofa!

CURVES

MUCH OF our knowledge of geometric curves comes from the work of the Greek mathematician Hypatia (AD 370-415). She developed the studies of the Greek mathematician Apollonius (262 BC-190 BC). Hypatia formed common curves, such as the circle, the ellipse, the parabola, and the hyperbola, by slicing a cone at different angles. This method of creating curves is known as conic sectioning.

Another way of creating a geometric curve is to trace the path of a point as it moves according to certain conditions. For example, by tracing the path of a moving point that is always the same distance from another fixed point, we can form a circle.



CONIC SECTIONS

The Greek Hypatia (370-415) devised her theory of geometric curves by slicing a cone. Nice.

PRACTICAL DEMONSTRATION

If you can't quite make up your mind about the *Encyclopedia of Science 2.0*, then look out for our upcoming demo, exclusive to PC REVIEW!

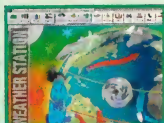
PC REVIEW VERDICT

A stunning disc that takes your breath away. Perfect for everyone, except perhaps scientists.



DEVELOPER
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PUBLISHER
Dorling Kindersley
CONTACT
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PRICE
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MINIMUM SYSTEM
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double-speed CD drive

COLD OUT?



Take part in that quintessentially British pastime of discussing the weather with new authority. This attractive menu screen is your passport to all the major climatic regions, with detailed explanations on everything from the jet stream and gulf stream to hurricanes and tornadoes. Everything is delivered in compelling multimedia style with animated sequences and narration, slide shows and video footage. The coldest recorded outdoor temperature is -128.8 degrees Fahrenheit at Vostok, during the bleak Russian mid-winter.

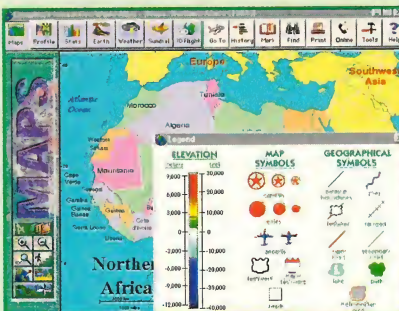
COMPTON'S INTERACTIVE WORLD ATLAS

It really shouldn't matter. When it comes to an atlas – a disc which by its very nature puts the whole globe into perspective – American bias shouldn't be a problem. Yet, as the CD whirs into life and a map of the world fills your screen, an announcer conveying more boredom in his voice than you can possibly imagine, utters “The World” in a pure Stateside drawl. The narrators continue in this vein throughout the disc, announcing each new place that you click on. Whatever else you might learn about the world in which we live, you'll certainly come to know how the Americans pronounce every place name on the globe from Afghanistan to Zimbabwe.

Thankfully, however, there's a talking phrasebook buried away in the atlas in which you can hear 20 common phrases pronounced in 43 different languages, British English (albeit a slightly Beatlesque

Liverpuddlian version) being one of them.

But of course, what really counts is the maps, and Compton's Interactive World Atlas has no fewer than 600 of them. As you'd expect, every country of the world is represented and there are a number of topographical details and other options so the



The maps are well-detailed, without being too cluttered, but often tend to be a little dull.

choice of view is both broad and customizable. The quality is always reasonable, but – sadly – there's not much to take your breath away. Even the enticingly named 3D Flight views which offer virtual world travel turn out to be just a handful of poorly-detailed pre-rendered spins around the world.

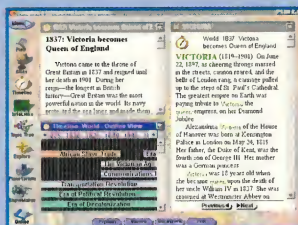


Global cultural aspects are amply covered with short essays, video clips and photos.

NEVER MIND THE QUALITY, FEEL THE WIDTH



Numbers become a bit meaningless after a while, but everybody wants to know how much they're getting for their money, so here we go. Compton's Interactive Encyclopedia contains a heady ten million words of text broken down into 37,000 articles. Illustrated with 8,000 photos and other pictures, there's also 17 hours of music and sound clips. There are videos, animations, slide shows, presentations and an introductory tour by Patrick Stewart. The built-in atlas is bang up to date, as are the monthly downloads available on the Web.



The main display is dull, but eminently practical and has quick access points for everything.

Just when you thought it must have curled up and died, the original multimedia encyclopedia is back with a vengeance.

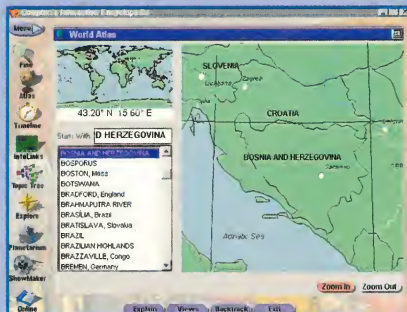
What was the first encyclopedia on CD-ROM? *Encarta*? *Grolier*? In fact, it was *Compton's Interactive Encyclopedia* that set the world of reference discs spinning back in 1989 with the first offering of text, animation, video, sound and

pictures all on one convenient little silver platter. No stranger to world firsts, *Compton's* was the first printed encyclopedia to combine pictures and words on the same page, back in 1922, and the original eight-volume work has now grown into a computer data-

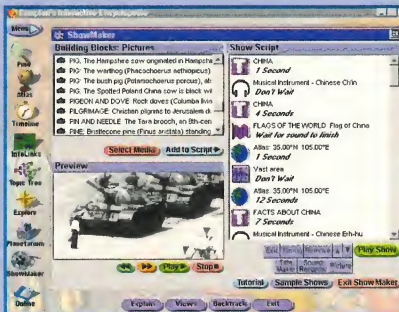
base with no less than ten million words hidden away up its CD sleeve.

The first is not necessarily the best, however, and this particular title has been well and truly put in the shade by the near-intergalactic success of *Encarta*, with its *World English* edition. Indeed, the big three of *Encarta*, *Grolier* and *Hutchinson* were all raring to go with shiny new 1997 versions, while the delayed *Compton's* has been left with quite some catching up to do.

The encyclopedia itself is impressively wide-ranging. Type “Queen Victoria” into the search window and after a long hard think, Compton's will come back with 948 separate articles for you to peruse, ranging from the Queen Victoria building in Sydney to Indian literature. A fair few of these actually contain information which you might be interested in if you actually wanted to look up Queen Victoria, though the main article – entitled



At first glance, the level of detail in the atlas might be skimpy, but everything on the map has at least one article in the encyclopedia.



To justify the 'interactive' tag, this multimedia presentation tool enables you to combine pictures, video clips, animations, text and sound.

Forget hot air balloons – if you really want to get around the world in one trouble-free trip, a multimedia atlas is the only

WORLD ATLAS

More useful features include the measurement tool which can tell you that it's 11 miles from Westminster to Bromley Common, as the crow flies, or 7,383 miles from Sydney to Botswana with just a couple of deftly aimed clicks. Other time-honoured traditions in multimedia atlases are catered

for in the form of thousands of statistics with associated maps, graphs and listings. But thankfully, this rather dull pursuit is enlivened by some 100 videos, 1500 photos and 750 music clips which enable you to meet some of the people behind the cold hard statistical maths. From snapshot videos of Casablanca

to llama breeders in Peru, these all help to add a human face to the geography.

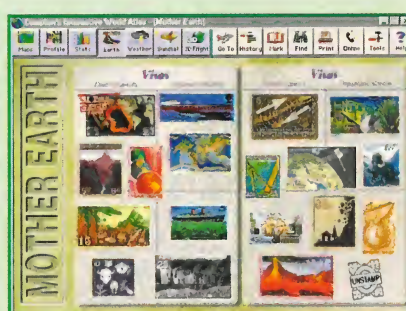
It has to be said, though, that the *Encarta World Atlas* does the whole cross-cultural thing better than *Compton's*, but a real area of strength in this *Compton's* title is in its multimedia essays on the environment. Under two separate sections entitled Earth and Weather, a wide range of issues are tackled using slide shows, animations and narration – ideal for giving children an insight into how the world works, or for giving adults a refresher course on all the stuff they've long forgotten from the geography classes of their school days.

This isn't the best atlas on the market, especially compared with the likes of *Encarta* or EA's *3D World Atlas*, but it's certainly not the worst. *Compton's Interactive World Atlas* is a high-quality piece of work and reasonably good value for the money. (MRR)

This neat Sundial facility links in to your PC's clock and shows you where the sun is rising and setting around the world in real-time, as you use the atlas. Time zone information is also available.



3D Flight sounds good, but is all the fun of a long-haul flight without the movie.



There are all sorts of facts and figures delivered from the pages of this virtual passport.

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Lots of maps and a wealth of stats and cultural info. Good physical geography and weather.

PC REVIEW VERDICT

7

INTERACTIVE 1997

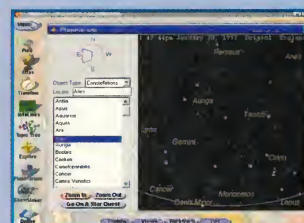
Victoria – disappointingly contains a mere 716 words. Hardly a fitting tribute to one of the main shapers of the modern world.

Unfortunately, Americanism rears its ugly head again. Look up Football in the index and you'll be bamboozled with 406 separate entries, but all on some obscure American game. Soccer, on the other hand, only gets a paltry little mention somewhere towards the end of the list even though, to quote *Compton's* itself, "Soccer is the world's most popular team sport."

The good news, however, is that despite the bias, virtually everything seems to be covered in at least some detail. Better still, the excellent search facilities make short work of getting at the information you're after. Timelines, atlas entries, slide shows and other multimedia encyclopedia paraphernalia are well represented and there's a coherent design to everything that makes *Compton's* a pleasure to use. At the end of the day, this is an attractively-produced, thorough and absorbing reference work. (MRR)



Several paths are laid out for you to explore, each built in to the shape of 3D environments – well, no multimedia experience would be complete without them, would it?



The built-in planetarium is well worth having. Tell *Compton's* where you are in the world and what the time is, then it'll plot the entire night sky for you.

DEVELOPER
Compton's NewMedia
PUBLISHER
The Learning Company
CONTACT
0181 246 4000
PRICE
£39.99
MINIMUM SYSTEM
486DX2/66, 8Mb RAM, double speed CD, 256 SVGA, Win3.1 or 95

Comprehensive yet easy to use, though the *Encarta World English Edition* is worth the extra £10.

PC REVIEW VERDICT

7

The only way to get more speed, action and response is to

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directional pad

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joystick handle

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four flippers

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Windows®95
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compatibility

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for four-player
action

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all games using
joystick, gamepad,
or keyboard
control

Windows95
software for easy
assignment of
keyboard
commands and
cheat controls

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controlled games

Support for
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www.gravis.com



THE UNIVERSE BEYOND

So many cosmological reference works, so little time. We venture into the great black yonder with a distinct feeling of déjà vu.

DEVELOPER
Mindscape
PUBLISHER
Mindscape
CONTACT
01444 246333
PRICE
£39.99
MINIMUM SYSTEM
486 SX33, 8Mb RAM,
Windows 3.1, SVGA,
double speed CD drive.

A polished yet shallow piece of multimedia on a subject featured too often.

PC REVIEW VERDICT

4

SAGAN LOGIC

The sun is one of about 100 billion stars residing in our galaxy. If each star were represented by a grain of salt, it would take more than 10,000 boxes of salt to accurately create a pinwheel model of our galaxy. A table bigger than the cross section of the earth at the equator would be needed to hold such a model, and each grain of salt would be thousands of feet apart. Blimey.

You wait ages and ages for one to turn up and then three or four arrive at the same time. No we're not talking about public transport but multimedia works that focus on time, space and the mixture of hot, cold or merely tepid big round things found in between. Yep, it's another 'amazing, personalized voyage' through the universe, this time courtesy of Mindscape. *The Universe Beyond* constitutes part of its *ExploraQuest* Series.

Those in the market for such a program will no doubt have their January copies of *PC REVIEW* handy in readiness to compare it with *The Challenge of the Universe* and *Nine Worlds*. You may even look back to the review of Stephen Hawking's *A Brief History of Time* in our October 1996 issue. Indeed there seem to be more similarities than differences between the products in terms of the information available to explore. The

It's good looking, but *The Universe Beyond* is ultimately a rather shallow delve into a deep, dark subject.

question is, with so much choice on offer in this subject area, why plump for this release over any of the others?

Well, at first glance *The Universe Beyond* seems to have a lot going for it. The front end of the disc is attractive and we are introduced to the subject by way of an oblique narrative which attempts to situate the user in some sort of subterranean cavern of knowledge with four sections to explore –

The Library, The Night Sky Room, the Legends Cave and The Deep Space Room.

Quite why this context is provided is unclear over and above the purpose of window dressing, although it does add a little atmosphere to the proceedings. The information contained on the disc is mainly textual, although this is accompanied by a selection of over 300 photographs, a few animations and a handful of short video clips. However, although many concepts are

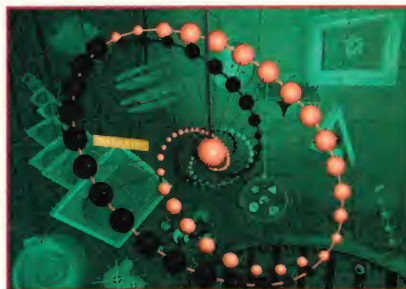
highlighted in the text, enabling a swift link to the glossary, the amount of information provided on each subject only plays lip service to that which could have been offered.

Although the developers have tried to get round the paucity of information with the inclusion of five personalities through which exploration may take place – an astronomer, cosmologist, physicist, shaman and child – one can't help but feel that there is just not enough here to merit the purchase. Okay, the added bonus of swift access to chosen Web sites and a shareware planetarium program are mild inducements but there's no getting away from the fact that you will probably exhaust the avenues of possibility within a few hours.

It's good looking, and with its Mader soundtrack, it even sounds nice, but *The Universe Beyond* is ultimately a rather shallow delve into a deep, dark subject. Scholars would do better to look at any of the three aforementioned releases, unless you're someone who advocates style over content. (JT)



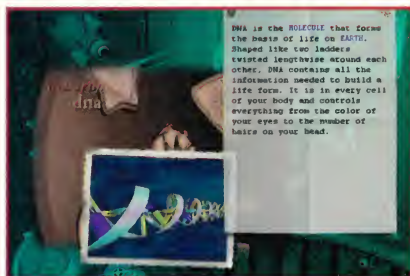
Old tubs and satellites seem to be a problem in space. This one needs a major overhaul.



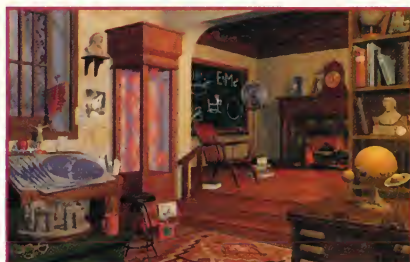
Galaxies are found in the Deep Space Room. The Internet connection has more information.



Here lie secrets of the origins of our current mythological understanding of the heavens.



That wonderful chemical building block DNA merits just two sentences. Tut, tut.



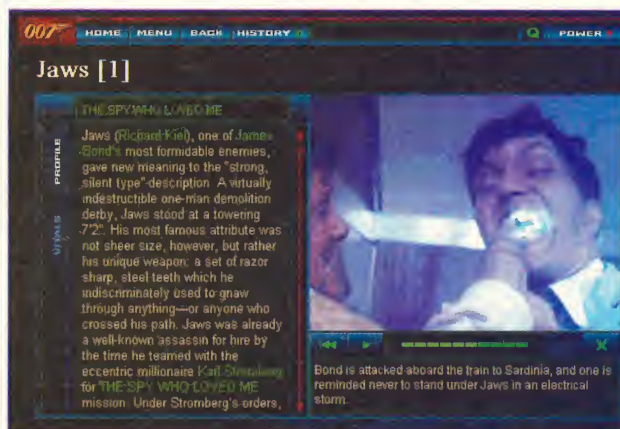
This shareware planetarium is a pretty poor addition to the main program.



Reminiscent of *Nine Worlds*, although the information available on our solar system is limited in comparison.



Pierce Brosnan played Bond in the 1995 movie *Goldeneye*. He worked as a commercial artist and a circus fire eater before finding acting fame as TV detective Remington Steele.



Jaws' villainous behaviour was literally shocking. He attacked Bond aboard the train to Sardinia in *The Spy Who Loved Me*, but metal teeth proved to be his achilles heel on that occasion.

THE ULTIMATE JAMES BOND

AN INTERACTIVE DOSSIER

Rocket-launching cars, villains with steel teeth, and a woman named Pussy Galore... The secret world of agent 007 will leave you shaken and quite possibly stirred.

Chat-up lines very rarely match the one employed by a certain English superspy for effect. "The name's Bond, James Bond," has charmed dozens of women, starting in 1962, and is still working over 30 years later.

Bond's 17 cinematic adventures have so far taken over \$2.5 billion from moviegoers the world over, and now he's back in suitably suave style with *The Ultimate James Bond: An Interactive Dossier*, a celebration of his career from Eidos Interactive.

Fortunately you won't need the technical prowess of Q to find your way around the hi-tech interface, although actor Desmond Llewelyn does pop up to offer on-screen

help. In fact, it could have been designed by the gadget maestro himself, as each click is accompanied by a satisfying bleep, buzz or whirr. There's even a 'covert operations' button to mask the screen with a fake office application – perfect for those times when

your manager pays an impromptu visit at work.

The main menu makes it easy to dip into the wealth of data. You can discover more about Bond's women, allies, villains, vehicles, gadgets from Q-Branch, or specific movies. Each film is accompanied by poster pictures, stills, publicity photos and location shots, a detailed plot synopsis, and video

footage showing memorable moments. To add to the atmosphere, music from the

appropriate soundtrack plays as you browse, and the films are placed in context with contemporary reviews and news events. For example, *On Her Majesty's Secret Service* fared poorly at the box-office but became one of the series' most critically acclaimed instalments later. The downside is that only the films' US-release dates are provided.

The other way to browse the two discs is via the handy search facility. Sometimes you'll uncover a real gem like the time Roger Moore purposely dropped his trousers during the famous gun-barrel intro sequence. Other entries are supplemented with Internet links to an exclusive Web site.

Fascinating to browse, the *Interactive Dossier* will remain useful for the times you just can't remember the name of the girl who was painted to death in *Goldfinger*. But just as 007 always has a life-saving gadget up his sleeve, *Dossier* comes up with a tricky Trivia Challenge to ensure it has a longer active life than one of Bond's cars. (GS)



"Good evening Mr Bond, we've been expecting you." Meet fellow agents, villains and plenty of glamorous beauties.

THE CAR'S THE STAR

Bond was well and truly upstaged in *The Spy Who Loved Me* by his white Lotus Esprit. Of the four cars used to film the three-minute sequence, only one could actually dive underwater – one was a road vehicle, another a bare frame and a third used for close-ups. The stunt took four months to plan and film.



Ursula Andress shows off her fine pair of shells as Honey Ryder in *Dr No*.



Bond's girlfriend used the most expensive variety of body spray. It proved to be a fatal choice.

DEVELOPER
MGM Interactive
PUBLISHER
Eidos Interactive
CONTACT
0181 780 2222
PRICE
£29.99
MINIMUM SYSTEM
486 66MHz, 8Mb RAM,
15Mb hard disk space,
double speed CD drive,
Windows 3.1 or 95.

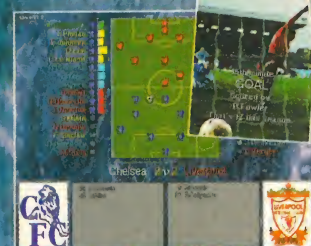
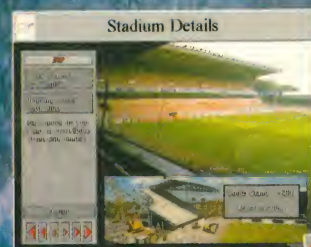
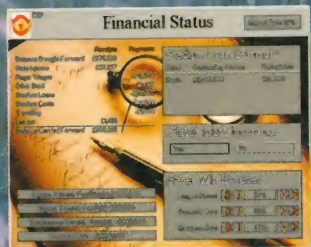
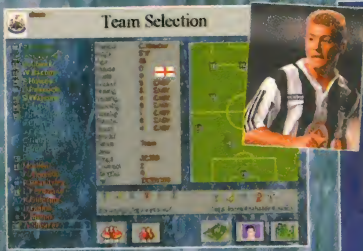
PC REVIEW VERDICT

Will suit fans and cat-loving megalomaniacs bent on world domination.

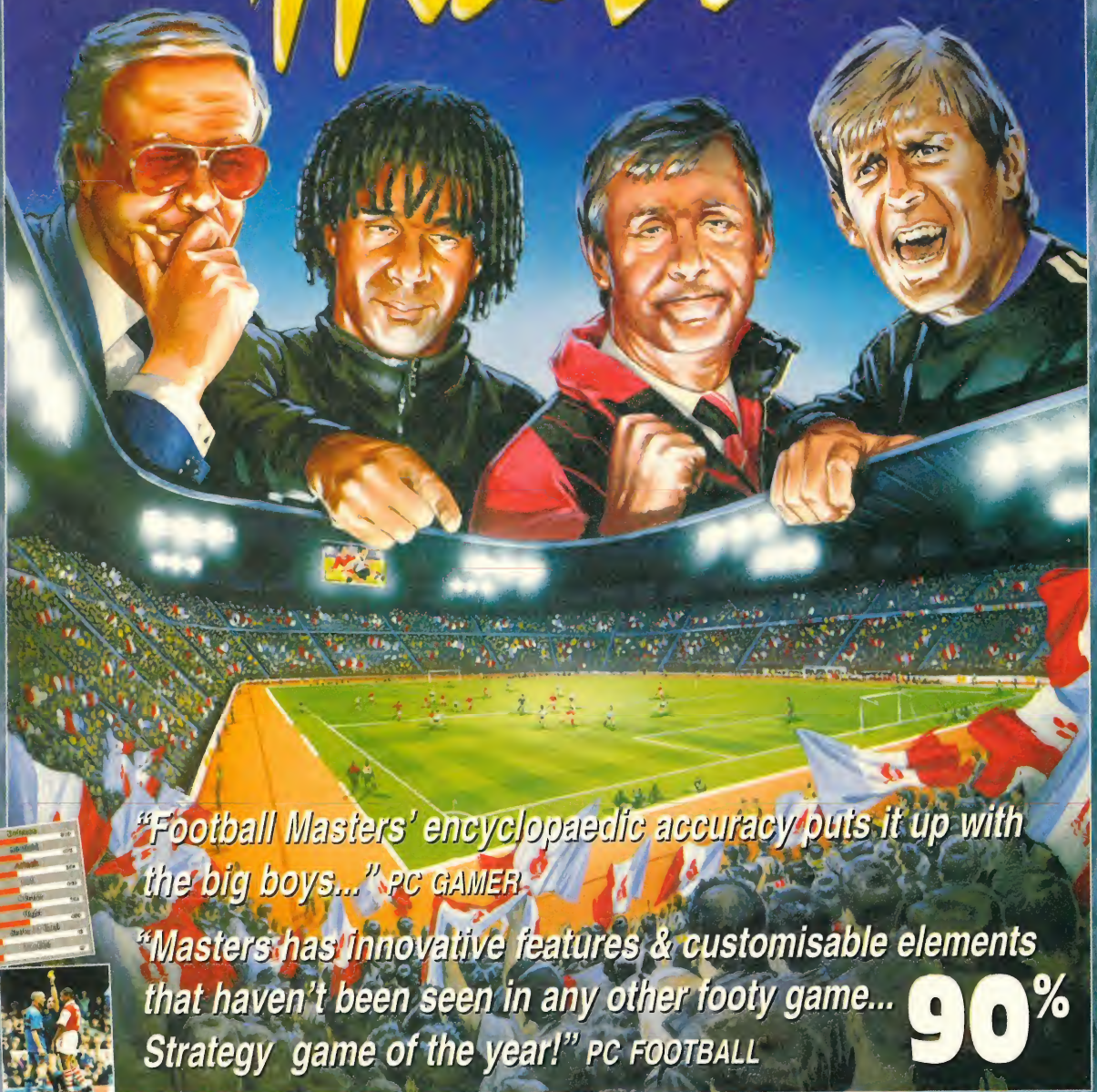
8

Sometimes you'll uncover a real gem like the time Roger Moore dropped his trousers during the famous gun barrel sequence.

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THE WORKS



Welcome once again to the section of the magazine where we look at the software and hardware that really helps you get things done.

Particularly exciting this month is our tutorial telling you how to make your own multimedia. Not only have we included a full, working version of Medi8or Entrée on CD REVIEW, but we're going to show you how to make your own multimedia music single. That begins on page 110.

In the meantime, to your left you can start reading my review of Micrografx's huge Graphics Suite, which is full of new programs to spice up your PC's creative life. Smashing stuff. And there's plenty more...

Mat Broomfield
Technical Editor
pcreview@futurenet.co.uk

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Set up your PC for head to head games

112

MICROGRAFX GRAPHICS SUITE

Must you sacrifice user-friendliness for power and flexibility? Micrografx screams 'no' with its new graphics suite.

Michelangelo spent years lying on a scaffold, toiling as he painted the ceiling of the Cistine Chapel. Hardly seems fair, does it? Especially not when today's PCs enable you to assemble collages that are no less spectacular in a matter of a couple of hours.

It doesn't stop there either. Thanks to 3D programs, you can generate incredibly realistic scenes, and you can even animate them – poor old Michelangelo would have packed up his brushes and gone home in a huff if he'd known how easy it would be for us to turn out beautiful works 400 years on.

Graphics software tends to be aimed at two distinct markets; the inexperienced home user, or the highly-proficient professional. Software aimed at the home market is generally big on user-friendliness and interactive help, but a little lacking in terms of features. Professional software, on the other hand, tends to have more features than you can wave a stick at, but they're often buried beneath an inscrutable and horribly designed interface. Micrografx has decided that you shouldn't have to choose between features and usability, and *Graphics Suite* is its all-singing, all-dancing solution.

The suite comprises six separate programs, four of which have won awards in earlier incarnations. There's *Flowcharter 7*, *Designer 7*, *Simply 3D 2*, *Picture Publisher 7*, *Media Manager 2* and *Quicksilver 3* and between them, the programs cover charting, vector graphics, 3D rendering, bitmap and

photo editing, Internet enhancement and clip art management. It's fair to say that *Graphics Suite* is a total solution covering just about every area of mainstream graphics. The big question on your mind has to be "how well does each program work?"

One of the biggest improvements over earlier program versions is in the user-interface. Most of the programs had a moderately friendly interface before, but in this release Micrografx has concentrated on two things:

Designer has an option, which ensures that your graphics are as compact and well designed as they can be.

uniformity between programs, and stylistic and technical consistency with the *Microsoft Office* interface. Micrografx has realised that *Office*, or at least *Word*, is the most popular productivity program after Windows itself, and so it makes sense to adhere to an interface design which resulted from millions of dollars and thousands of hours of research.

Frankly, however, the interface doesn't immediately strike you as being innovative or impressive. It just sits there while you do your work. It's only after a while that you come to realise how intuitive the programs

are to use – how you never seem to waste time looking for hidden or absent functions. Perhaps one day we'll reach a stage where we no longer need to talk about how good or bad a program's user-interface is, but until then, *Graphics Suite's* unobtrusive design is a step in the right direction.

Micrografx seems to rate *Flowcharter 7* as the most important program in the suite, followed by *Designer* and *Simply 3D*. This is a bit of a strange emphasis because for most people – particularly at home – *Picture Publisher* is likely to be the most important part of the suite. Still, not to worry, each of the main programs is powerful, so regardless of your personal preference, you'll find something that will meet your requirements.

Like all professional graphics programs nowadays, *Picture Publisher* has gone far beyond the point where you talk with any enthusiasm about basic features like colour channels, natural media brushes or effects. These have become de facto components of even the cheapest graphics packages. You can take it as read that you'll have no trouble using the program for photo manipulation or for creating original works. What makes it interesting are the innovative extras.

The addition of many graphics Wizards is in keeping with Micrografx's desire to make its programs easier to use. Wizards are a feature of almost every new program on the market, but even so, the ones in *Picture Publisher* cover an impressive range of subjects. If you're not familiar with the concept, Wizards are automated tools which ▶

SPEAKING GRAPHICALLY

BITMAP GRAPHICS

Graphics which are created as pixel maps called bit-planes. They're good for complicated stuff like photos, but their quality degrades if you resize them.

BOOLEAN MATHS

A form of binary maths often used in graphics. One graphical object is used as an operator upon another.

FLOWCHART

A table which is used to describe the logic or relationship of events or procedures. They originated in the computer world where they were used to clarify program operations, but they can be applied to literally any action, from making a cup of tea, to planning to take over the world!

LOSSY FORMAT

A graphical file format which achieves superior compression by discarding some image information. Successive resaving of an image in a lossy format like JPEG can eventually degrade the image to the point where it ceases to be useable.

RENDERING

The computer process of calculating how an image should look, and drawing it. For instance, after you've laid out a 3D scene, the computer renders that scene for you. Similarly, when you apply effects to a bitmapped image, the computer renders the new image.

VECTOR GRAPHICS

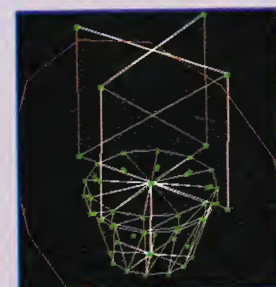
Graphics which are created using mathematical drawing tools, and which are stored as equations rather than bitmaps. Although vector graphics tend to be used for simpler images, their quality remains perfect no matter how much you resize them.

SIMPLY 3D 2

Simply 3D 2 is exceedingly easy to use, comes with tonnes of models, and enables you to create animation in no time at all. With selective ray-tracing for faster rendering, and powerful Wizard-based text generation, it's a good program to use if you occasionally wants to create a bit of 3D, but don't want to have to become an expert to do so.



Animation is as simple as dragging an animation primitive from the library.



With its new object editing modes, you can quickly deform existing objects in a variety of creative ways.

perform tasks, or create graphics in response to your answers to simple questions. They're great because they not only save you time, but enable you to create images that would otherwise be beyond your abilities. Two particular favourites are the CoolText and Contact Sheet Generator Wizards. CoolText creates text using full colour patterns in the style of your choosing. For instance you might want a font that looks like heat branded wood, rivetted metal or flaming glass. There are 16 highly effective styles to choose from, and they can be applied to any standard Windows font. The Contact Sheet Generator does exactly what its name suggests. You give it a series of file names, and it will read the graphics in those files, and create a contact sheet that serves as an index to your graphics. This is particularly useful if you like to upload graphics to the Internet. Other useful Wizards include Drop Shadow, File Format Conversion, Photo Fix and Red Eye Fix.

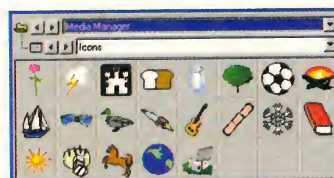
One feature that graphics professionals will appreciate is the DigiMarc digital watermarking

system. You can use it to embed an invisible watermark containing copyright details. This watermark then travels with your image, regardless of whether it's resaved, or scanned. The only exception to this is when your file is resaved using a degenerative (lossy) file format such as JPEG. After a few saves in this format, the watermark is wholly destroyed, but by that stage the image quality has become so poor that the picture is not commercially useful anyway.

If at first you don't succeed

One of the reasons that PCs make it so much easier for amateurs to create good pictures, is that you can often undo or erase mistakes and try again without spoiling the image. *Picture Publisher* takes this idea of 'undoability' to the ultimate extreme, thanks

to a remarkable new feature called the Command Centre. The Command Centre stores a complete list of every single action you've performed on an image, and at any stage, you can return to an earlier step in the creative process, undoing all subsequent modifi-



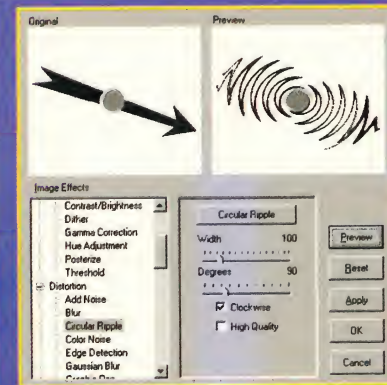
Media Manager is a convenient way of organising graphics for access in Office-compatible programs.

DESIGNER 7

Although the previous version of *Designer* was powerful, its interface drew widespread criticism. As part of the new *Microsoft Office* look, the program is now vastly more attractive and intuitive to use. But the improvements are not purely superficial. There are more blends and pattern fills than ever before, and in support of its bitmap modes, there are over 50 image processing effects which can be applied to your graphic elements or compound objects. Furthermore, some excellent Boolean object manipulation options enable you to combine, split and overlap multiple objects in numerous labour-saving ways.



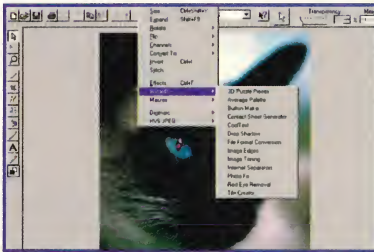
Using simple Boolean operations, creating complex shapes in Designer is no trouble.



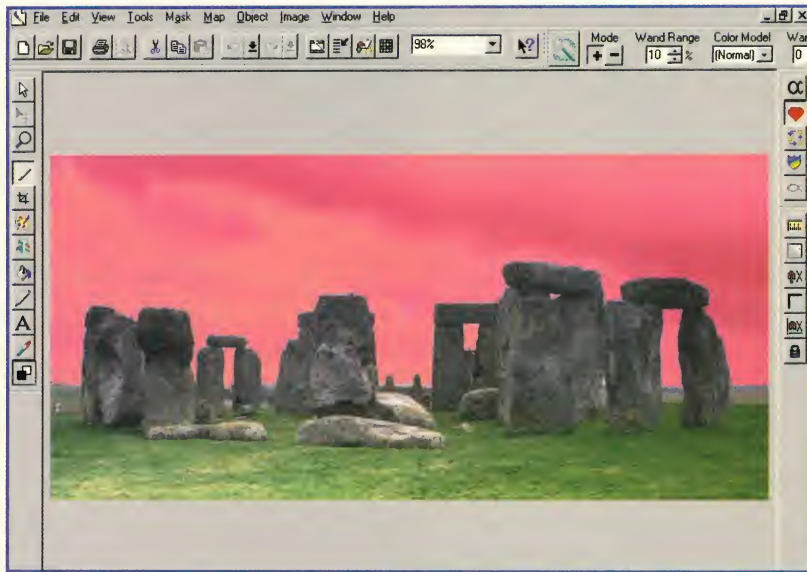
Designer even enables you to apply bitmap-type effects to a vector objects.

PICTURE PUBLISHER 7

Picture Publisher has always been a Micrografx flagship product, and although the previous version left something to be desired, this update is right up at the cutting edge. With Macros and Wizards, the key terms here are ease-of-use and automation. Digital watermarking, multiple floating selections, infinite intelligent undos and ruby overlay for easy mask construction. There are more than enough new features to keep you technoholics happy for a while, too.



Red Eye Removal is just one of many brilliant time-saving Wizards available.



Using the very straightforward Ruby Overlay feature, you can immediately see which parts of your image are masked, and which still need your attention.

Designer also offers a collection of over 600 bitmapped and vector pattern fills. You can convert any object within a scene, into a bitmap, upon which you can perform over 50 photographic and colour balancing effects.

Web-ready

Just about every new program boasts Internet support, and Designer is no exception. Using the Quicksilver 3 plug-in, you can add Designer vector graphics to your Web pages, enabling you to massively reduce the time it takes for users to download graphics. Designer also has an option, which ensures that your graphics are as compact and well-designed as they can be. It'll even tell you exactly how long it will take users to download each image – what more could you ask for?

Simply 3D is certainly the least powerful program in the suite. It's aimed at novice and intermediate 3D users and is extremely easy to use, thanks primarily to its instantly accessible drag-and-drop interface. It comes with a huge library of ready-made objects, and all you have to do to include one of these in your scenes is drag from the catalogue to the View window. You can rotate, resize, move and scale any of the objects you choose with equal ease. Amazingly, it's only slightly more complicated to create animations, although the scope of the motion is very limited. There are numerous animation pre-sets, such as 360-degree rotation, flips and bounces. To apply one to an object, simply select the pre-set and the object, and that's it, animation done. Combining pre-sets or altering the duration of an effect is a trickier process, but not much.

Thanks to some very nifty modelling tools, it's easy to distort and warp existing models, but making them from scratch is rather more arduous. When it comes to text,

you can use the Wizards to generate animated 3D titles in minutes.

Chances are, you'll find that FlowCharter 7 will never be any more than an interesting curiosity. It's used for creating diagrams, charts, tables and much more besides.

We've never encountered or heard of anyone who actually uses such a program, yet many companies dedicate a lot of R&D money to researching new ways for designing charts. Admittedly, this is a very slick piece of software, and even though it's associated primarily with making flow charts, there's no reason why you couldn't use for creating things like family trees, bar charts or simply some basic pretty pictures.

For the power user, the most interesting addition must surely be a feature called Living Flowcharts, which enables you to assign events to each element of a chart. As you then work through the chart, following normal flowchart logic, each response can action a computer event, such as the transfer of data between programs, or a mathematical calculation.

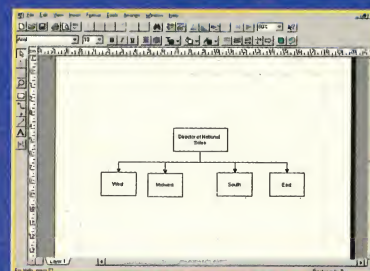
You want more?

Last but not least in the package, is Media Manager 2, more of an applet than a fully-fledged program. It's a very handy way of managing your graphics and clip art. It understands over 55 file formats, and it stores catalogues of images that are arranged by category. In addition to the default catalogues, you can add your own images too. The best thing about the this application is the way it makes your images so accessible, whatever application you're in. Load Media Manager on top of Word, Designer, Picture Publisher or whatever, find the image you want, then drag it directly from Media Manager in to your document. The program takes care of any file conversion that may be required. (MB)

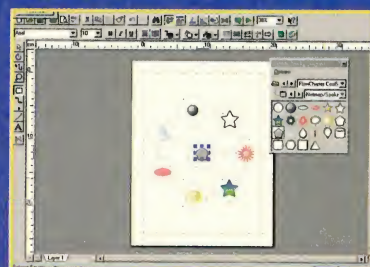
This update is right up at the cutting edge. With Macros and Wizards, the key terms here are ease-of-use and automation.

FLOWCHARTER 7

This is already an industry-leading program, and although you're unlikely to find a use for it at home, business users are gagging for it – if Micrografx is to be believed. Anyway, it costs more than £230 on its own, so to find it in a package costing £249 seems remarkable. As you'd expect of a program costing this much, it massively simplifies the process of creating every type of diagram from simple flow charts, block diagrams and process charts, to circle spoke diagrams, comparison charts and project timelines. The big news in this version is a feature called Living FlowCharts. These are flowcharts, which can be used to input and organise data while responding interactively to each input.



This flowchart could represent anything from a family tree to a basic process table.



There's every opportunity and tool you'll need to create the most complex charts and diagrams – or make pretty pictures!

THE ALTERNATIVES

COREL DRAW 6
Much more expensive, with a similarly targeted, but animation-less 3D program, a comparable paint program and a very unfriendly (but extremely powerful) vector graphics program. Corel doesn't include any kind of charting software, but all the other program elements are present, as well as numerous extras including a program for doing multi-media presentations.

FREEHAND 7
GRAPHICS STUDIO
Again, far more expensive. Includes a state-of-the-art vector graphics package, a pro-level 3D program and a superb paint/photo editing program. Also includes Fontographer, a magnificent font creation package. There's no charting software and no media manager, but there is the comprehensive Internet vector program Shockwave.

HIIAAK
GRAPHICS SUITE
The cheapest package of all, because it's the least comprehensive. The main program is the Browser, which really simplifies your picture cataloguing. Also included are rather ordinary paint and vector programs, as well as an applet for converting between the two. Okay, but limited.

DEVELOPER

Various

PUBLISHER

Micrografx

CONTACT

01483 747526

PRICE

£249

MINIMUM SYSTEM

486 DX, 8Mb RAM, Windows 95, 200Mb hard disk space, CD drive, VGA

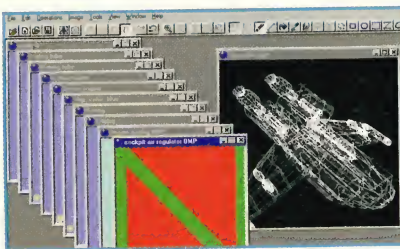
Graphics Suite is both friendly and versatile. It's an all-encompassing package.

PC REVIEW VERDICT

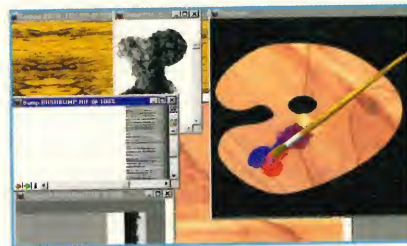
8



It's a pity that Mesh Paint is so primitive because it's much faster than Detailer.



Even with so many bitmaps, you have to save each one manually in Mesh Paint.



In Detailer you can combine texture maps to create exceptional realism and depth.

THE FINER DETAILS

Creating 3D objects is hard enough, but adding convincing surface textures is really difficult. At least, it was until now...

DETAILER

DEVELOPER
Fractal Designs
PUBLISHER
Principle
CONTACT
01706 832 000
PRICE
£327.83
MINIMUM SYSTEM
486DX, 12Mb,
Windows 95,
40Mb hard disk,
SVGA, CD drive

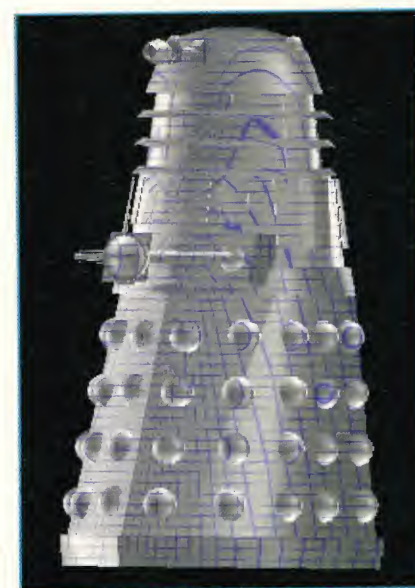
Although it's extremely slow and resource hungry, Detailer is stunning.



PC REVIEW VERDICT



Thanks to its multiple wrap modes, you can accurately create surfaces for any models in Detailer, although you may need to tweak them in Ray Dream first.



Here's the Detailer Grid Paper mode, which lets you correlate your 2D and 3D images.

MESH PAINT

DEVELOPER
Positron
PUBLISHER
AMG Premiere
CONTACT
0171 468 3457
PRICE
£528.75
MINIMUM SYSTEM
486, 8Mb, Windows 95,
20Mb hard disk, SVGA,
CD drive.

Fast, but very expensive for such a low quality package.



PC REVIEW VERDICT

Modelling in 3D is an extremely time consuming task. If you're making anything more complicated than a simple sphere or cube, then creating the models is arduous enough, but when it comes to applying surface detail, in the form of texture and bump maps, things get really complicated. The problem is that surface details are created using two dimensional bitmaps which are wrapped around, or projected onto your model. It can be tricky enough visualising details in 3D, but trying to work out how a 2D bitmap will look when applied to a 3D shape is downright mind-bending. Fortunately, there are now a couple of programs that greatly simplify the process. Both use the same principles – it's far easier to add details and surfaces to your objects in 3D than it is in 2D.

Detailer, from Fractal Designs, provides you with a large number of natural media painting tools with which to apply your designs. Users of *Painter* will be instantly familiar with the interface, which is almost identical. The one big difference is the addition of a 3D view window which displays

your model. Initially this window is only 200 x 200 pixels, since memory use is directly proportional to the size of the Window. A window 400 pixels along each side requires 8Mb of RAM, while an 800 x 600 one requires a massive 24Mb. Worse still, the speed at which the program operates is also linked to the size of the 3D window. Even on a P200, things slow to a crawl at window sizes of 600 x 400 or more. This is a shame, because the 3D window, is of course, where you paint your 3D object.

Mesh Paint has no such restrictions, and with a full-screen 3D window, you can paint quite happily in real time. Unfortunately, though, the program requires regular screen update cycles, which can lock you out for minutes at a time. Whichever program you use, you'll have to resign yourself to a lot of waiting around.

As well as *Detailer's* predefined natural media drawing tools such as brushes, pens, crayons and so on, you can also define your own, plus various fills and more exotic tools, like the image hose. *Mesh Paint* also provides you with a variety of predefined

tools, and although they're not named after real-world drawing media, they produce similar effects. Here too, you can define your own brushes and stamps, although the scope of your creations is far narrower than with *Detailer*.

In both programs, you can freely rotate your object, although it would be more accurate to say that you're rotating your view of it, particularly in *Detailer*, where you can define multiple light-sources, enabling you to render directly from within the program.

In addition to the 3D view, each program generates a 2D bitmap, and you can paint directly onto that instead of the model if you prefer. In *Detailer*, changes to the 2D images are immediately reflected on the 3D one, but in *Mesh Paint*, you have to specifically choose to render an update.

Once you've created objects, they can be exported, surface details intact, for use within industry-standard 3D programs. *Mesh Paint* actually works directly within *3D Studio*, like an extra menu option, whereas *Detailer* can be accessed from *Ray Dream Designer*, which is included free of charge. (MB)

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ON SALE
4 MARCH

RASTERMEDIA 3-IN-1 CARD

When you want the very most from your upgrades, you might need a multi-talented card like the RasterMedia 3-In-1.

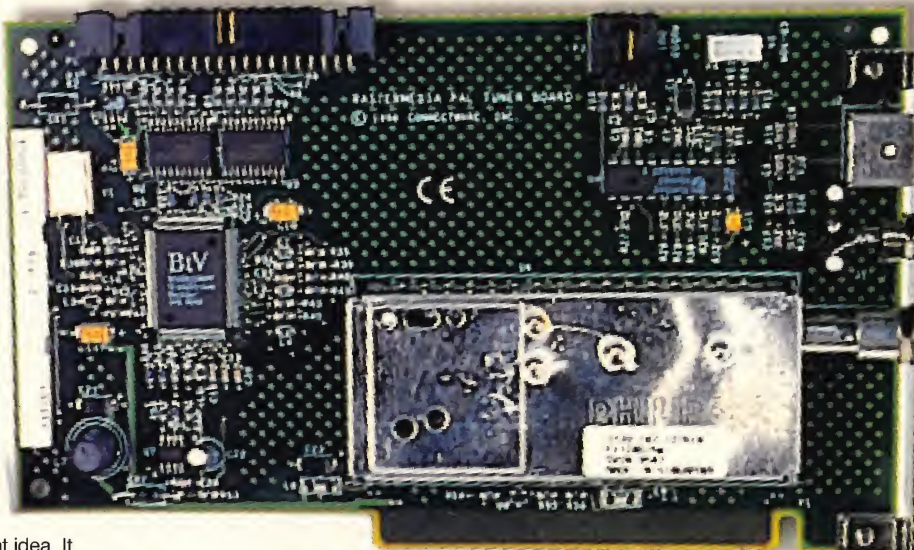
Now's a great time to own a computer and every single day brings an exciting new piece of gadgetry for you to plug into your PC. Whether it's a graphics accelerator, a sound card, a TV tuner or a digital video editor, there's no end of mouth-watering titbits available to keep things interesting. The only trouble is, all these upgrades are expensive and, even if you can afford the necessary financial outlay, you can quickly run out of slots on your motherboard.

That's why the RasterMedia 3-in-1 Multimedia Accelerator seems so interesting. This innovative piece of PC circuitry is a great idea. It combines two of the most common peripherals – a graphics accelerator and a soundcard. The third component of the title isn't actually supplied as a standard part of the package – it comes as an optional extra. It's a TV tuner and video overlay card, but we'll come to that in a minute.

A winning combination?

In theory, there are numerous advantages to a combined card such as this one. For starters, it only occupies a single PCI slot, whereas individually the components would have used two or three. However, with up to eight slots in most modern motherboards, you're more likely to run out of interrupts (IRQs), before you run out of motherboard slots. That's where a card like this one could really rack up the brownie points if it were also a cleverly designed piece of kit.

As it is, however, the card actually seems to use more resources than the stand-alone components would have done and unfortunately, the RasterMedia is far from being the best in design terms. While everyone else is combining lightning fast 2D acceleration with 3D capabilities, Connectware is only offering a one or two megabyte, 2D-only card that moves rather slowly. It's about half as fast as the Matrox



Mystique, and at least 30 per cent slower than any of the 3D cards reviewed in our 3D feature. It does provide software MPEG playback, but frankly, it hardly manages when the graphics are stationary, let alone with animation.

The sound of silence

Furthermore, the soundcard isn't nearly as good as it could be. Though it is 16-bit, it fails to match the standards of your everyday SoundBlaster 16. Its MIDI synthesised instruments particularly, are about as unconvincing as they could possibly be.

It's a shame to see one of the first all-in cards failing so badly, and it really does seem like a product that's two years past its sell-by date. The TV tuner add-on card is a little more promising, and so you might wonder if the 3-In-1 only achieves its full glory when you take a look at it in totality.

Tune in, turn on...

The logical thing to do with the tuner upgrade, would have been to attach it to the main card as a daughter-board. Instead, this one occupies another motherboard slot and the attendant resources that that entails. Given that fact, you might just as well buy a TV card from a rival. Admittedly, the TV card also enables you to record your own AVIs, and you can also connect an external video source, watching that through your computer too, but then so do many other cards.

At the end of the day, the 3-In-1 is about limitation rather than liberation. It might save you one motherboard slot, but in return you get bad performance twice over – once from the soundcard, and then again from the graphics accelerator. (MB)

THE NEW DIRECTION

Although the RasterMedia 3-In-1 card isn't particularly good, we felt it was important to review it so that you could see the direction that technology is taking. It may be the first card to combine this many features, but it most certainly won't be the last. With so many pieces of hardware actually developed beyond the needs of the everyday user, rather than ever more features in each individual type of card, what we're going to be seeing more of in the future is the combination of different cards for more compact computing. When the major players like Diamond and Creative get in on the act, things will really get interesting. Next issue, we'll be taking a look at a multi-card from Miro, which, with luck, will set a better standard for everyone to aim for.

Integrated cards are likely to be more and more popular in the future. Let's hope they're not all as dismal as this one.



"Oh blimey, Kaff. Your 'ead's gone all smudgy, an' I 'aven't even 'ad a drink. I swear." The Mitchells suffers a bit when reproduced by the Rastermedia 3-in-1 on our PC.

DEVELOPER
Connectware
SUPPLIER
CMS Peripherals
CONTACT
01256 330030
PRICE
£129.25 (1Mb)
£170.28 (2Mb)
plus £105 (TV tuner)
MINIMUM SYSTEM
Any PC with a PCI slot

PC REVIEW VERDICT

The 3-In-1 is such a good idea, but it unfortunately it turns out to be disappointing.

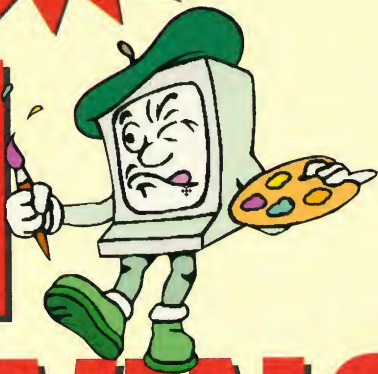
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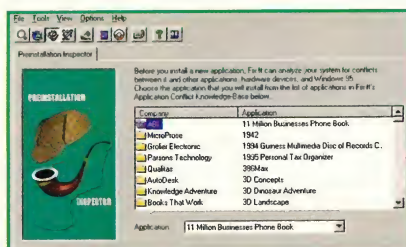


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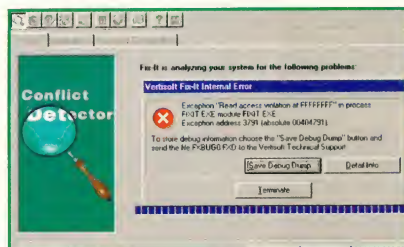
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ON SALE FEBRUARY 6TH 1997



Preinstallation Inspector enables you see if you'll get conflicts from software installation.



The Conflict Detector didn't even detect the conflict that crashed it. Very droll.



Use the Performance Optimizer to ensure that your system is always working at its best.



With Problem Preventer, you can pre-empt any errors before they raise their heads.



Fix-It is a collection of tools which are supposed to diagnose, cure and prevent a whole range of Windows 95 problems. As if.

FIX-IT

Is there such a thing as a single program that will detect and fix all Windows 95 problems? Read on if you want to know the answer.

Use Windows 95 regularly and you'll know that things don't always go the way they should. Superficially, it's certainly a more stable and flexible environment than previous versions and, provided you don't make it work too hard, you won't get into trouble. Unfortunately, if you like to push your operating system to the limit and make it earn its keep, you'll know that Windows 95 can easily trip, stumble and fall over. To make matters worse, it's a very multi-layered environment and the deeper you delve, the more technical it gets.

It used to be enough to do regular housekeeping, but now, with all the care in the world, your system will still get screwed up from time to time. If you're lucky, that'll just mean an occasional crash, but if you're not, you could lose valuable data.

Like *First Aid* before it, *Fix-It* attempts to diagnose and rectify as many problems as possible, ranging from missing files and program conflicts, to poorly set up hardware and registry entries. Like its rivals, it comes with a Crash Defender, which interrupts program crashes and prevents them from taking your whole computer down. The Crash Defender loads automatically at start-up, and sits there quietly monitoring your activities. If something happens that causes a crash, Crash Defender leaps to the rescue. Unfortunately, this sort of program never seems to work properly. Among experts, they're viewed with suspicion, and this is because they usually introduce more problems than they resolve. Our test machine,

crashed irretrievably three times with Crash Defender installed – something it hadn't done over the several months prior to the software installation...

Another feature, is the Conflict Detector, which is designed to find software bugs and problems. On our PC it persistently reported an internal error, then – you guessed it – it crashed. To be fair, the machine had a number of software errors, and we'd deliberately chosen one that had been displaying erratic behaviour. However, these are exactly the kind of problems that the program is supposed to deal with, so its failure to cope isn't really justified. We did try it on a machine with a freshly formatted drive, and a new installation of Windows 95 and this time it worked as it should, and reported a stream of software conflicts and bugs, but we'd entirely lost confidence in its accuracy by then.

One somewhat gimmicky part of *Fix-it* is the Preinstallation Inspector. It works on the premise that some programs will always conflict with certain Windows configurations. When you run the Inspector, it first checks your system.

then offers you a list of known programs. Choose the one you want, and it will check to ensure you can install it safely.

The only two dependable bits of the program seem to be the Change Remover (a kind of super uninstaller), and the Performance Optimizer. There's also a comprehensive directory of company technical help lines, but surely the whole point of the program, is that you won't need to spend hours working through problems on the phone.

Overall, *Fix-It* is a disappointment. It worked fine on the machine that was clean and working properly, but on our gnarled-up, bug-ridden PC, it went belly-up, kicked its little legs in the air, and surrendered. **(MB)**

DEVELOPER
Beam Software

PUBLISHER
Melbourne House/EA

CONTACT
01753 549442

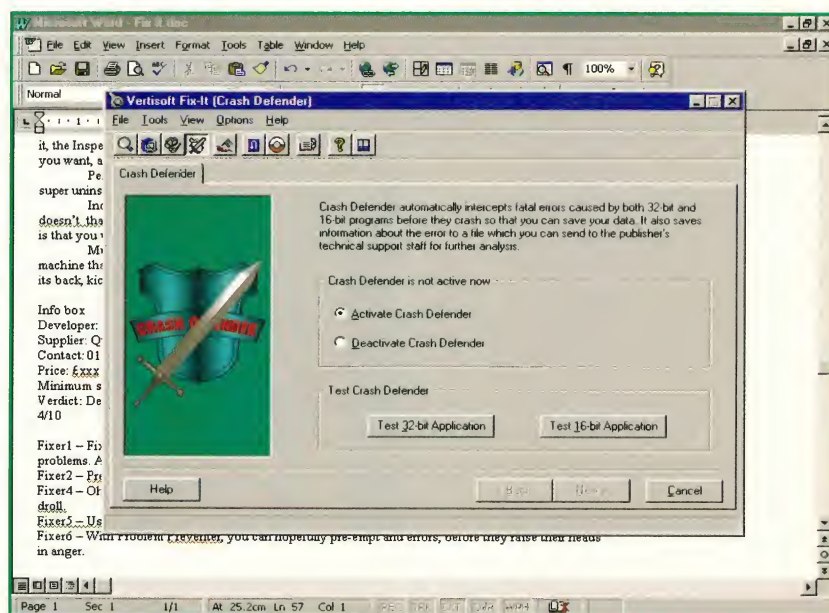
PRICE
£39.99

MINIMUM SYSTEM
386DX, 4Mb RAM,
Windows 95, 5Mb hard
disk, VGA

VERDICT Despite our natural scepticism, Fix-It still managed to perform more badly than we'd feared.

PC REVIEW 4

Conflict Detector persistently reported an internal error, then – you guessed it – it crashed.



Crash Defender is a great idea in principle, and a rather dubious one in practice.

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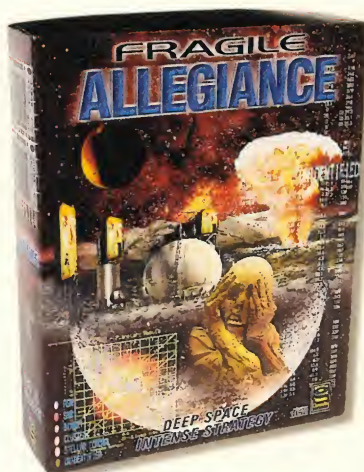
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Fragile Allegiance (0040)

RRP £39.99

Chose the game *Fragile Allegiance* as your free gift and you won't be disappointed. In fact, it will keep you occupied for hours on end. *Fragile Allegiance* sees you in the role of a TerraCorp employee in the distant future. Your task is to mine asteroids and build up space fleets in this fantastic strategy game from Gremlin. Naturally, you won't have it all your way as you compete against five alien races to plunder the asteroid belt of its riches. You can try a diplomatic approach, making pacts with your tentacled cousins, or you can simply boil them into a primordial slime using your Star Destroyers. Remember *Asteroids*? *Fragile Allegiance* is miles better.



Simply 3D Super Pack (0042) Micrografx

With its high performance rendering engine, mass file support, quality textures and materials and complete object control, *Simply 3D* is the 3D animation package you've always wanted. You could say it's simply the best. Included are the full version of *Simply 3D* including demonstration videos, *Doublevision* for creating 3D stereo images, *WinBlob* which enables you to model 3D images and three discs full of 3D scenes such as dinosaurs, castles and 3D worlds. Keyframe animation enables you to define camera paths on the fly and focal lengths for each view. All you need is imagination. A comprehensive manual is included.



Graphics Works (0044)

Micrografx

Here at PC REVIEW we think graphics are an important and fun part of leisure computing. That's why we're offering our new subscribers the chance to get themselves a complete set of graphics tools when they decide to join our extended family of readers. With *Graphics Works* you can wow your colleagues with your graphical prowess. There are drawing functions, with full support for Bezier curves, object manipulation tools and special effect filters. There's a whole suite dedicated to photo editing and, to top it off, *Graphics Works* even comes with a slideshow program for presentations. If you like to get creative with your PC, or even just muck about with graphics files of all descriptions, then *Graphics Works* is just the thing.



Realms of the Haunting (0041) RRP £49.99

Few games have managed to combine the 3D first person excitement of the *Doom* series with a solid plot as well as *Realms of the Haunting*. Here you get all the action, plus a storyline that involves ancient demons, Templars, the gates to Hell, holy magics and, yes, the Prince of Darkness Himself. In fact, *Realms of the Haunting* could be the game that changes adventures forever. If you like suspense, complex puzzles, terrifying action and more than a hint of pure evil breathing down your neck, then *Realms of the Haunting* has to be your choice as a free gift when you subscribe.

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Windows Draw 4 (0043) Micrografx



Windows Draw 4 is the ultimate printing and graphics studio. While there are many packages on the market combining every facet of image manipulation, few are so consistently reliable. You can use *Windows Draw 4* to produce all your postcards, letters, certificates and the like that you could possibly need. There's stacks of clipart and typefaces on the disc for use in your own projects. A vector package that rivals even the best professional drawing software, *Windows Draw 4* is the choice of graphics stylists.

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DIGITAL SKETCH PADS

Do you yearn for a better drawing tool than the mouse? If you can use a pencil, you can use one of these graphics tablets – it's the creative way of controlling your computer.

One of the reasons that many otherwise intelligent people find PCs so intimidating is the almost alien way through which these machines are controlled. It can be quite comical watching the extreme awkwardness of new users as they tentatively try to move a mouse or the hesitancy with which they poke in commands on the keyboard.

The truth of the matter is, however, that many users find computers excruciatingly irritating and unwieldy. It's for those more accustomed to pen and paper than keyboard and mouse that graphics tablets may present some sort of solution. But don't think that they're entirely for beginners – most of us are still far more competent with a pen than a mouse, especially when it comes to drawing.

Graphics tablets are flat boards containing an embedded array of wires that detects the position and status of a special pen which is moved across its surface. The rectangular surface area of the tablet represents the screen. It may use an absolute translation system, where every point on the tablet has an fixed counterpart on the screen. Or, like your mouse, it may use a relative system, where movements are only calculated relative to the current cursor position.

A graphics tablet can be used as a direct replacement for the mouse, and using an absolute translation, this is actually a far faster and more intuitive means of control. They really come into their own, however, when they're used in conjunction with graphics software. Here, they provide a means of input which is far closer to using real pens and pencils.

At the most basic level, the tablet enables you to reproduce the flowing strokes of a pen or paintbrush, and if you're using a pressure or tilt-sensitive pen, you can produce far more subtle artistic techniques, enabling you to create various stroke weights and angles.

If you've ever felt unhappy about the contrived and non-tactile nature of a mouse, one of these tablets is likely to be just the thing you've been waiting for.

ArtPad II

The fact of the matter is, if you want the best features and the best quality, you'll need to pay a price reflecting that. Wacom tablets, while expensive, are quite simply in a class of their own. At smaller than A5 size, the ArtPad II is the cheapest in their range, yet still offers most of the benefits of its costlier stablemates.

Chief among the tablet's many excellent attributes, are those supported by the pen. It's cordless of course, but unlike other cordless pens, it uses no batteries, so it'll keep on going forever. The pen is slim and natural to hold, and has a single button on the side. The tip has 256 levels of pressure sensitivity and with software that supports this feature enables you to vary the width or density of your strokes according to how hard you press – just like an art pencil.

In addition to that, the pen is also tilt sensitive; ideal for use in programs where software permits, it can be used to provide quill-like calligraphic strokes of different widths, among other things. The other unique feature is an eraser. Again this needs explicit software support in order to work, but when it is supported, it makes the creative process that much more natural.



For professionals and enthusiasts alike, the Wacom tablets have set the benchmark against which the competition is judged.

ArtPad is the cheapest tilt and pressure sensitive board available.



DEVELOPER	SUPPLIER	CONTACT	PRICE
Wacom	Computers Unlimited	0181 200 8282	£158.63

Despite its price, the ArtPad includes all the essential features of the UltraPad, in a compact and easy-to-use tablet.



Why it's better to draw

According to graphic designer Willie Ryan, the pen will always be mightier than the mouse when drawing. "If you're drawing with your hand, and you're thinking about how something looks – especially if drawing people or figures – it's the tiniest indication on a line that will describe what you're trying to say. You will

always create a natural arc if you go from your elbow to your wrist, and there are a number of minor arcs between your wrist and fingertips." Read more about artists like Willie Ryan in our sister magazine Computer Arts (£4.99, bi-monthly).





Kids Designer



**Perfect
for younger
kids who don't get on
with the mouse.**

Here's a great idea from Genius targeted at computer users aged 4-10. It comprises a robust, brightly coloured pad, complete with pen holder. The pen is distinctly chunky, but feels surprisingly good in your hand. The nib is too large for precise work, but this gives it the durability that's needed for younger users. It has an unexceptional resolution of 1016 lines per inch (LPI), but given that it's for kids, this is high enough. Rather than placing any buttons on the pen shaft, there's a single strawberry-shaped button mounted at the edge of the pad which takes over the normal functions of the right mouse button.

The pad can be used instead of a mouse, and thanks to its plug and play configuration, it's very easy to install.

It comes with *Designer* art software from Broderbund, enabling your kids to start using the tablet straight out of the box. It may not suit your needs, but it's perfectly suited for your younger children.

DEVELOPER	SUPPLIER	CONTACT	PRICE
Genius	KYE International	0181 669 7300	£77.55

The Kids Designer encourages kids to take an interest in art, yet it's hardy enough to withstand their most enthusiastic efforts. ★★★★★

Easy Painter



The Easy Painter is just a basic pointing device. The pen does nothing more than replace the mouse.

This is the adult version of the Kids Designer. The tablet is plainer, the pen is smaller and has a single large button mounted on its shaft, instead of the Designer's more colourful Strawberry. The function of the button and the nib can be set using the supplied driver. Like its junior relative, the Easy Painter has a resolution of 1016 lines per inch, which is adequate for all but the most precise of operations. Because the pen's connected to the tablet by a cord, it rather hampers your movement when you're trying to create flowing strokes. Unfortunately, the nib of the pen only acts as a simple on/off switch, and doesn't even support

multiple levels of pressure sensitivity, let alone advanced features like tilt detection. That means that pad is perfectly adequate for use as a replacement mouse, or even as an electronic pen, but it's not really an expressive digital art tool. Definitely for those on a tight budget, or unwilling to invest in an expensive tablet before getting to know them better.

DEVELOPER	SUPPLIER	CONTACT	PRICE
Genius	KYE International	0181 669 7300	£77.55

The Easy Painter is so inexpensive, that anyone can try one to see how they get on. It's rather lacking in features though. ★★★★★

Summa Expression



**The
Summa tablet is
very nice to use.**

Now we're getting into the more interesting (and expensive) stuff. The Summa Expression uses a full A5 pad which provides more useable area than the mini tablets, or even the Wacom Artpad II. It's very flat and light-weight, yet incorporates six programmable macro buttons and a further six buttons to set the way that it responds to input. It uses the most ergonomic cordless pen available, with two small buttons on the shaft and a nice quill shape for comfort. The pen offers 256 levels of pressure sensitivity, and this can be altered so that more or less pressure is required. It operates at a resolu-

tion of 2540 LPI and has a tracking speed of 178 points per second. The Expression even comes with a dinky little two button mini mouse, so if you don't want to waste another COM port with your mouse, you can use this one, via the pad, as a controller. However, it will prove to be an expensive purchase.

DEVELOPER	SUPPLIER	CONTACT	PRICE
Summagraphics	Calcomp	01734 567115	£299.63

Although the Expression is a lovely tablet, and the cheapest of the ones with macro buttons, it's still rather expensive. ★★★★★



UltraPad A4

This is the ArtPad's big brother (boasting an A4-sized tablet), and it's very expensive. It has the same high resolution of 2540 LPI, and the same fast 205 points per inch tracking speed, which is doubly important at this sort of size because it enables you to draw at a speed which is natural to you, rather than dictated by the tablet. In addition to the exceptional tilt and pressure sensitive eraser pen, which is also a feature of the ArtPad II, the UltraPad comes with a four button puck for CAD use. Incidentally, thanks to Wacom's unique technology, the pen doesn't

require batteries, unlike the other cordless models. Unfortunately the puck doesn't have any cross hairs, so it's no good for tracing. However, the tablet does have a dedicated autoCAD mode, and this is supported by a strip of programmable buttons running across the top of the pad.

DEVELOPER	SUPPLIER	CONTACT	PRICE
Wacom	Computers Unlimited	0181 200 8282	£539.33

There's simply no other graphics tablet that comes close to the UltraPad. Even so, it's extremely expensive. ★★★★★



For the ultimate in pen and tablet features, it must be the UltraPad. Hope your bank manager's friendly though!

NewSketch 1212HR

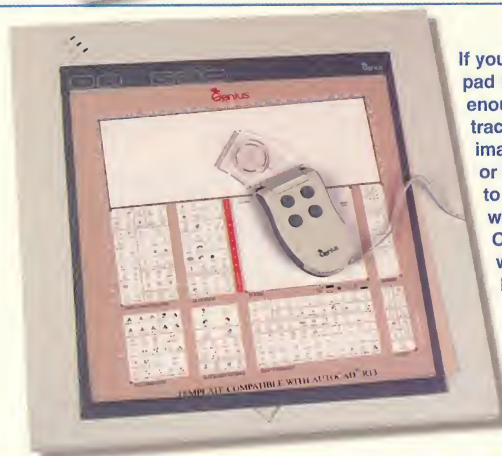
With an active area of one square foot, only the UltraPad equals the NewSketch. However, its pen is connected by a cord and that means more restricted movement around the tablet's surface. The NewSketch uses the same binary pen nib, which doesn't make for much in terms of stroke subtlety. However, it does come with a four-button puck, complete with crosshair. Although it doesn't have any programmable buttons, it does come with an AutoCAD template, making it a very affordable option for home CAD users. This fits underneath a protective transparent acetate flip-sheet, but if you're not using

the template, you can just as easily slide drawings to be traced under the cover.

The tablet more than doubles the resolution of its cheaper siblings at 2540 LPI. This really enables you to draw precisely at this larger size. Using the supplied Wintab driver, you can also use the tablet as a replacement for your mouse if you like.

DEVELOPER	SUPPLIER	CONTACT	PRICE
Genius	KYE International	0181 669 7300	£158.63

The NewSketch is a very reasonably priced, entry-level tablet for new users, or professionals working on a strict budget. ★★★★★



If you need a pad large enough to trace A4 images with, or you want to try one with your CAD software, the NewSketch proves a very inexpensive solution.

How they compare

MODEL	ARTPAD II	KID'S DESIGNER	EASY PAINTER	EXPRESSION	ULTRAPAD	NEWSKETCH 1212HR
Price	£151.63	£77.55	£77.55	£299.63	£539.33	£158.63
Active area (inches)	5.04x3.78	7x5	5x5	6x8	12x12	12x12
Resolution (lines per inch)	2540	1016	1016	2540	2540	2540
Tracking speed (points per second)	205	200	200	178	205	200
Pen type	One button cordless, no battery	One button	Two button	Two button cordless	One button cordless, no battery	Two button
Advanced pen modes	Variable pressure, tilt, eraser	None	None	Variable pressure	Variable pressure, tilt, eraser	None
Score	★★★★★	★★★★	★★★★	★★★★★	★★★★	★★★★★

Future Tablets

It's hard to imagine any great changes in the future of graphic tablet technology given the fact that we haven't come up with a satisfactory replacement to pens, pencils and brushes. Tablet design has remained largely unchanged for years, and touch screens have always been too tiring for prolonged use. Obviously followers may strive to add features that the Wacom tablets already have, such as erasers or tilt sensitivity. Nevertheless, it is conceivable that in line with the trend

towards ever greater natural media realism, input devices could perhaps be designed to generate tactile feeling exactly like the real thing. Softer or longer nibs could simulate brushes or felt tips, with more or less smooth tablet overlays providing the grittiness or resistance of media such as chalk and charcoal.

Given the industry's tendency to start combining similar technologies, perhaps we might even see combined scanners and tablets.

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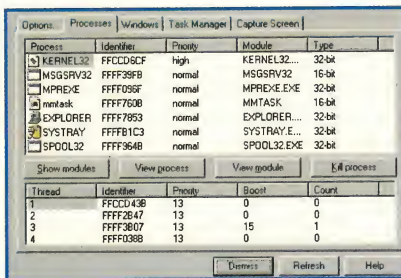
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Our PC experts, loyal as ever, return to answer your questions and to give you tips on Windows fonts, the meaning of MIME and adding a Pentium Overdrive. Among other things...

TAKING CONTROL

Q The Task Bar in Windows 95 gives a list of currently running programs, allowing you to switch between them, and the Close Program box lets you close down unruly applications. However, I would like to know if there is any way to get a more detailed view of what's running on my system?

Jonathan Barrat, Lower Spalding



The System Information utility lets you delve into the innards of your Windows 95 system.

A If you have Microsoft Office on your Windows 95 system, then you can get a basic list of running processes by using Microsoft's *System Information* tool. Open the About box in any Office application, such as About Microsoft Word in the Help menu, and then click the System Info button. Alternatively, find the SYSINFO32.EXE program on your hard disk, and run that. Then click the Applications Running item in the left-hand pane, and you will see a list of the current processes running on your system. However, you will not be able to control any of the processes displayed.

If you want more control, you'll have to get hold of another system information program. A good one is called, appropriately enough,

System Information. You can download it from the following FTP site: <ftp://src.doc.ic.ac.uk/packages/windows95/sysutil/sinfo200.exe>.

System Information gives you a detailed listing of currently running processes, and allows you to kill a process or get more information about it. You can also view a list of currently open windows, and rearrange them. In addition, for quick access you can install *System Information* as an icon in the system tray (in the bottom right corner of the screen).

ON-LINE ACROBATICS

Q Some Web sites these days have so-called PDF files to download. When I click on them in Netscape, the only option I have is to save the file on my hard disk. Even then, if I double click on it, Windows 95 just can't find the applications it needs to load it in. Does Windows 95 need upgrading to look at these PDF documents? Please help!

Mike Richards, Barking

A PDF stands for Portable Document Format, and is a file format created by Adobe to overcome some of the problems with using PostScript to distribute documents. For example, PostScript documents are not ideal for viewing on screen, partly because they make assumptions about the fonts available on your system. Also, it's not easy to search the text of a PostScript file to find words or phrases that you're interested in.

PDF addresses both these issues, and many others.

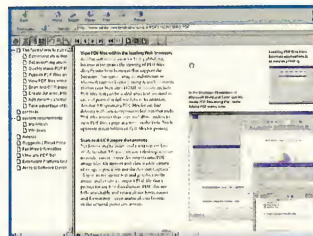
To view or print PDF files on your PC you need a program called *Acrobat Reader*. This is available for free from Adobe's Web site, at <http://www.adobe.com/>. The latest version for Windows 95 is 3.0, and it comes with both the standalone reader program and a plug-in for *Navigator* or *Internet Explorer*. The plug-in lets you click on a PDF file on a Web page and then view it on screen inside your web browser's window.

ADDING A PRINTER

Q I've been thinking about buying an ink jet printer to go with my Windows 95 PC. The ones from Canon seem pretty good, but I'm worried that I will have problems setting it up. Is it easy to add a printer to Windows 95, or should I get expert help?

David Larchness, Rotherham

A Windows 95 comes with a special program designed to help you connect a printer, and you should be able to manage it yourself. If you look in the My Computer window, you'll find a folder called Printers. Open this, and you'll see an icon called Add Printer. If you already have any printers installed, there will be icons for each of these in the Printer folder. Double-clicking the Add Printer icon will take you into the Add Printer Wizard. This takes a step-by-step approach to adding a new printer to your PC.



Use Adobe's Acrobat Reader and you can view PDF files from within your web browser.

READER'S TIP

If you're tired of slow menu-response (meaning it takes a long time for a sub-menu to appear), you can change this. On the Start button, click Run, and type in `Reedit` and press [Enter]. This will open the registry for Windows 95, so don't fool around in here. But to speed up menus, go to the `HKEY_CURRENT_USER\Control Panel\Desktop` directory. In the right pane of the registry editor, right-click and select `New\String Value`. Call this one `MenuShowDelay` (exactly like that), and double-click on it to set the value of it. Set the value to zero. When you restart your computer (not just Windows), your menus will soar. Pål Vågseth Karlsen, Norway

FONTS BONANZA



Microsoft has made two useful font-related utilities available on its TrueType font World Wide Web site, <http://www.microsoft.com/truetype>.

The first was originally available in the *Windows 95 Plus!* add-on pack, and performs on-screen font smoothing, also known as anti-aliasing, which is used to make the edges of fonts look smoother, and thus more readable, when displayed on screen.

This is achieved by carefully placing grey pixels around the boundary between the black text pixels and the white background pixels.

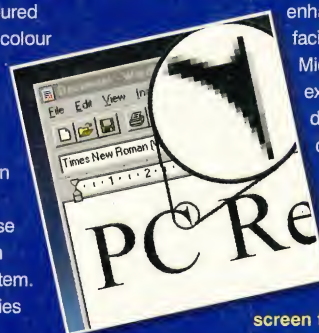
If you look closely at large text without anti-aliasing, you can see that curves and other details have rather jagged edges. With font smoothing turned on, Windows smooths out these rough parts with extra coloured pixels. You must be in at least 16-bit colour mode for it to work.

Download the font smoother from Microsoft's set, and run it. This will add a Plus tab to your Display Control Panel, and there you'll find an option to enable font smoothing.

The second font utility is for those of you who want detailed information about the fonts installed on your system. It adds many sections to the Properties box you see when you request the

Properties of a font file. For example, you get detailed information about the source and format of the font, along with details of special features used by the font. To install the enhanced Properties facility, download it from Microsoft, and run the executable file in a new directory. Then right-click the .INF file that appears there, and choose Install.

Microsoft's font smoothing utility improves the readability of on-screen text through a process called anti-aliasing.



READER'S TIP

In one of PC Gamer's latest issues (a fine magazine, but PCR is better) there was an ad for something called a "System Commander". The ad says it lets you run more than one operating system on one computer and goes on, listing Windows 95, Windows NT, OS/2 and so on. Excuse me for being silly, but why do you need to pay £99.95 for such a program, when there is an 'OS Loader' in all of the ones I listed? Windows NT provides a small menu upon boot-up that lets you choose between current systems, and I've heard OS/2 has the same. And Windows 3.1x can still be run in a DOS session. So paying a lot of money for a program you get anyway is somewhat foolish. Pal Vågseth Karlsen, Norway

READER'S TIP

Did you know that the Recycle Bin in Windows 95 allows you to set a limit on how much recycled stuff is kept on your hard disk? You can specify how much space it can use before it starts deleting stuff for good. Right-click on the bin and pick Properties. Then use the slider to tell it how much space on your disk it is allowed to use. You can even have a different setting for each hard disk, if you have more than one installed in your system. Brian Worthy, Birmingham

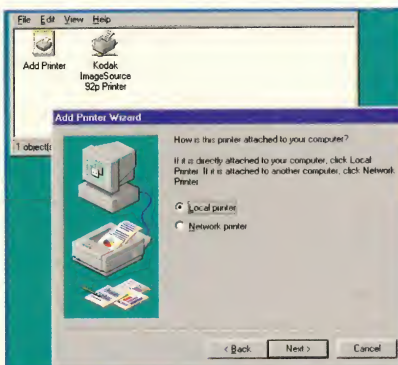
The Wizard will first ask whether the printer is local to your PC or on a network. Choose local, and click next.

The next step is to tell Windows what kind of printer you have, so that it can install the appropriate software driver and thus allow your applications to print. Windows already knows about a large number of printers, so have a look in the list first. If your printer isn't there, your manufacturer may have supplied the driver on a disk. If so, click the Have Disk button, and tell Windows to read the disk. Check your printer's documentation for more details. You can also check to see if the required Windows 95 driver is included at the time you buy the printer.

As a last resort, check with the manufacturer directly, to see if drivers are available. If you're on the Internet, see if the manufacturer has a World Wide Web site from which you can download drivers. A number of printer drivers can also be found on Microsoft's web site at <http://www.microsoft.com/>.

The remaining parts of the Wizard will ask you which port on your PC the printer is connected to, and offer to print a test page.

In addition, once the Wizard has finished, you should be able to tweak your printer's configuration by right-clicking on its icon and choosing Properties.



Adding a new printer is easy with Windows 95's imaginatively-named Add Printer Wizard.

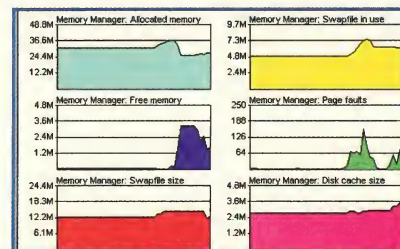
first. Intel is also planning to produce MMX Pentium OverDrive processors, to upgrade from a standard Pentium to an MMX Pentium, but details of these have yet to emerge.

REGULAR JERKING

Q I have an Evesham Vale P133 with 16Mb RAM, a 2Mb Diamond Stealth 64 video card and a Logitech mouse. Roughly every 20 minutes, when in Windows 95, my PC freezes for a second, runs for a second, freezes again and so on until it has jerked five times. This is intensely annoying. What can I do about it? It is definitely not the fault of the programs I'm running, because I'm often not trying to do anything at the time. Tom Francis, via the Internet

A The most likely cause of this problem is virtual memory. This is an area of your hard disk that Windows 95 uses as if it was real memory (RAM) so that it can run programs that need more memory than you have installed.

Windows also performs disk caching, which stores up disk writes in memory, to improve performance. Every so often Windows must flush the disk cache to disk, which you may notice. A large disk cache means that less real memory will be available for your



Windows 95 System Monitor application can help you see if your PC needs more RAM.

applications. The System Monitor application will let you check on your virtual memory size (known as the swap file) and on the size of your disk cache.

There are a number of things you can do to improve the situation. To prevent Windows from wasting time resizing its swapfile, select Properties from My Computer, click on Performance, then Virtual Memory. Specify your own minimum and maximum sizes for the swapfile - around 35Mb is a good value for a system with 16Mb of real RAM. It's also worth limiting the amount of disk cache Windows 95 uses. Open the SYSTEM.INI file in your Windows directory and go to the section

SAVE YOUR OUTPUT

TIP OF THE MONTH
MS-DOS allows you to redirect the input and output channels of many commands, and to string commands together in pipelines. This can be useful if you want to combine the effects of several commands together. For example, you can take the output from one command, say CAT, pipe it into the SORT command to sort it, and then redirect the output of the SORT command into a file, so you don't lose it.

Normally MS-DOS commands take input from the keyboard and produce output on the screen. However, you can redirect the input or output to a file or printer. The greater-than sign > sends the output of a command to the specified file, or to a device such as LPT1. To capture the output of the DIR command to a file, type the following: DIR > LIST.TXT. You will find that LIST.TXT now contains the directory listing. The MORE command always requires you to redirect input into it, so to view a text file do: MORE < LIST.TXT. The pipe character | lets you string commands together, connecting the output of one into the input of the next. For example, if you pipe the output of a command into MORE, you can view it a page at a time. So, MEM /C | MORE lets you study the loaded modules in memory without them whizzing off your screen.

```

Name      Size in bytes      Size in KB
-----
SYSTEM    16384      ( 16,384)    16KB
MODULE    13272      ( 13,272)    13KB
PROCESS   8192       ( 8,192)     8KB
DIR.BIN    2572       ( 2,572)     2KB
DOS        384        ( 384)        0KB
FREE      8864       ( 8,864)     8KB
Total FREE: 66704 ( 66,704)

Total bytes available to program (ConventionalUpper): 786560 ( 786,560)
Current available program size: 42912 ( 42,912)
Percent available upper memory block: 8864 ( 8,864)

C:\DOS>type total available extended memory
  bytes available contiguous extended memory
72160 bytes available 100 percent available
MS-DOS resident in High Memory Area

C:\WINDOWS>type %* > memory.txt
C:\WINDOWS>type < memory.txt
    
```

Use the redirection facilities of MS-DOS to combine commands.

MMX POWER UP

Q I have only just upgraded my PC to a P166 with 32Mb EDO RAM and a Diamond Stealth 3D card. Now MMX is on the way. Thankfully my PC, like many others, has a Socket 7 on the motherboard (which is an HX Intel Model) which, various people have told me, will make it possible to simply place a new MMX chip into the socket, or do I have to wait for an MMX OverDrive chip? Obviously I don't want to upgrade my PC again. Bryon Hinson, via the Internet

A For the uninitiated, MMX, which stands for MultiMedia eXtensions, is a new technology developed by Intel, manufacturer of the processor inside most PCs.

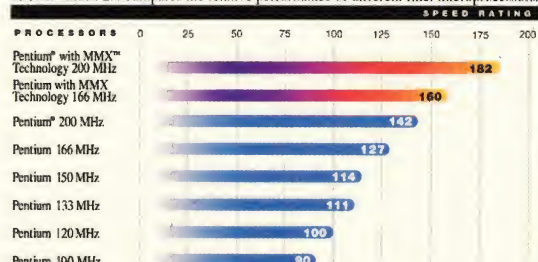
MMX is an extension to the processor's set of instructions, geared towards processing video, audio and graphical data efficiently. The new MMX instructions are particularly aimed at speeding up operations which are performed in parallel on several bits of data at the same time. Such operations are often at the heart of mathematical algorithms used in digital signal and image processing. In January, Intel launched two new Pentium processors which incorporate MMX technology, one running at 166MHz and the other at 200MHz.

You'll be pleased to know that your Intel motherboard will support the new MMX processors, assuming it's a model TC430HX (this is Intel's current Pentium motherboard product). It's worth checking with your PC vendor first, though, if that's possible.

You have to be careful with other motherboards, however. One important difference with the MMX Pentium is that it requires two separate voltage inputs to the chip, rather than the Pentium's one, and the motherboard has to be designed to accommodate this. This means that you may not be able to plug a standard MMX Pentium into your Pentium motherboard, so you should check

iCOMP® Index 2.0

iCOMP Index 2.0 compares the relative performance of different Intel microprocessors.



According to Intel, the 166MHz MMX Pentium out-performs the 200MHz Pentium.

labelled vcache (add it if it's not already there). Enter the following two lines to limit the cache to about a quarter of your real amount of RAM: MinFileCache=4096 and MaxFileCache=4096.

One of the best solutions, however, is simply to buy more memory. 16Mb is a sensible minimum, but if you find your machine is using lots of virtual memory, you should consider upgrading to 32Mb. It shouldn't cost your more than £100.



If your laptop doesn't come with a built-in CD-ROM drive, you can easily add on externally.

CD ON YOUR LAP

Q I have a Toshiba Portege laptop which I find very convenient because of its small size and weight. However, it doesn't have a built-in CD-ROM drive, nor does there seem to be a port to plug in an external drive. Since a lot of software seems to come on CD these days, it would be handy to be able to use a CD-ROM drive with my machine. Can you help?

Jeff Vintage, Sunbury-under-Lyme

A You have a number of options. You can buy a CD-ROM drive that attaches to the parallel printer port on your laptop. This probably won't give you great performance, but it will be relatively inexpensive.

A speedier option is to buy a CD-ROM drive that makes use of a PC Card (formerly known as a PCMCIA card) which you can slot into one of your laptop's card slots. There are drives available with a dedicated controller card, such as the CyberRom drivers from Innovative Communications. These are available in versions which run at different speeds – double-speed, quad-speed and so on.

A more general purpose option, but somewhat more complicated, is to buy a SCSI (pronounced 'scuzzi') interface on a PC Card. This will allow you to attach a wide range of SCSI devices to your laptop, from scanners to

tape drives and CD-ROM drives. SCSI devices are generally more expensive than non-SCSI ones, and are often tricky to configure, but you do gain from the added flexibility and performance. As always, though, it all comes down to how much you want to spend.

DOS CD-ROM DIFFICULTY

Q I've had to reinstall MS-DOS 6.22 on my PC, and my CD-ROM drive is no longer accessible. I know that I have to load in the drivers with my CONFIG.SYS file, but what exactly is involved?

Betty Merton, London

A You're on the right track with your CONFIG.SYS file. The first thing you need to do is load the driver software for your CD-ROM into MS-DOS memory. In general, each CD-ROM drive requires its own specialised driver. This driver should be supplied with it, so check to see if you have any floppy disks around which might contain it. If you do have the CD-ROM drivers disk, it may well have an automatic installation program on it (usually called SETUP or INSTALL), so all you need to do is run it. If you can't find the drivers, you'll have to hunt around a bit. Try looking at the manufacturer's World Wide Web site, or get in touch directly.

The driver is loaded by MS-DOS by adding a DEVICE= or DEVICEHIGH= line in your CONFIG.SYS file. Put the name of the driver file after the equals sign, which is usually something like CDRMDRV.SYS. Then put a /D:MSCD000 parameter after the driver name. This allows you to refer to the installed driver at a later date, using the name specified – in this case MSCD000.

The next file to modify is your AUTOEXEC.BAT. Here you need to run a

program from Microsoft called MSCDEX.EXE. This is supplied with both MS-DOS and various versions of Windows. Add a line to your AUTOEXEC.BAT that refers to the driver name given previously: MSCDEX /D:MSCD000. You can optionally add an /L:D option to set the drive letter of the CD-ROM drive to D: (or any other available letter).

Add the /E switch to let the drive use expanded memory buffers, if available. Reboot, and your CD-ROM should be ready to use.



Many CD-ROM drive manufacturers, such as Creative Labs, have their software drivers available to download over the Internet.

WINDOWS 97?

Q The version of Windows 95 which came with my new PC seems to be a little bit different to the version on my girlfriend's PC (she got hers about a year ago). For example, I seem to have received Internet Explorer version 3.0, and there are more screensavers available (some of them are in 3D, too). So what's going on – is this a sneak preview of Windows 97?

Owen Nayler, Romford

A The version of Windows 95 that's shipping with new PCs is indeed different to the version released on that now-fabled day when *The Times* was given away for free. Since the release of Windows 95, Microsoft has produced

READER'S TIP

When you're entering lots of text into one of Windows 95's dialog boxes, constantly having to switch to the mouse to click in the next field is a real pain. Well, there's a much better way of getting around dialog boxes, and that is to simply use the [Tab] key. Pressing [Tab] will move the current selection to the next item in the dialog box, so you can keep your hands on the keyboard. Pressing [Shift] and [Tab] will move you back to the previous item. If the dialog box is divided into different sections with tabs, press the [Control] and [Tab] keys to switch to the next section. [Shift], [Control] and [Tab] will take you to the previous section.

Monica Jones, London

TO OVERDRIVE OR NOT OVERDRIVE

Most people probably know about Intel's processor upgrade for 486 users. The Pentium OverDrive chips let you plug a Pentium-like chip into your motherboard to give your machine a performance boost. The fastest Pentium OverDrive chip runs at 83MHz, but this doesn't mean you get the same performance as a real 83MHz Pentium.

Once of the main reasons for this is that a Pentium motherboard is different to that of a 486. For example, the 486 uses a 32-bit data bus, while the Pentium uses a 64-bit one. The data bus is the part of the motherboard through which the processor accesses the RAM in your system. So, normally a Pentium processor gets data from memory in 64 bit chunks. When

you try to put a Pentium-equivalent processor into a 486 motherboard with an OverDrive processor, it has to make do with the motherboard's 32 bit bus. Thus it takes at least twice as long to get a full 64 bit chunk from memory than a

Pentium sitting on a Pentium-specific motherboard since the Pentium OverDrive chip has to compromise to accommodate the 486-based motherboard.

Although performance benchmarks should always be treated with suspicion, they can be useful for making

comparisons. The SYSmark 95 benchmark, which attempts to measure application performance, gives an 83MHz Pentium OverDrive system a

If you want to upgrade your 486 you may find it's worth buying a new motherboard, or maybe a whole new PC.



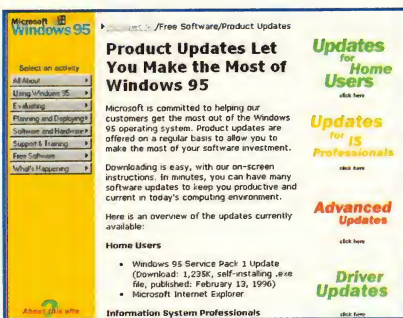
score of 223, while a real 60MHz Pentium gets a score of 227, and a 133MHz system gets a score of 461.

If you really want to upgrade your 486 system so that it can compete with today's entry level PCs, you'll probably have to get a new motherboard designed specifically for the Pentium. And you'll need more RAM and hard disk space, too. In fact, you may find that it's a lot less hassle to buy a whole new system. You should be able to sell your 486 PC, though you may find it useful to keep it handy as a spare system.



READER'S TIP

If you're interested in creating your own Web pages, may I suggest you have a look at the Gold version of Netscape Navigator. It's available to download from Netscape's site, and is subject to the same licensing agreement as plain old Navigator. Gold looks pretty much the same as the standard version, but it has an Edit button on the toolbar that takes you into the HTML editor. This lets you write a Web page using a familiar word-processing style environment, and you generally don't have to worry about all those pesky HTML tags. Marvin Bradshaw, London



Service Pack 1 is available on Microsoft's web site. It includes new drivers and bug fixes for Windows 95.

an upgrade called Service Pack 1, which is available to download from its Web site. In addition, various other odds and ends, such as new drivers and bug fixes have been produced. Go to <http://www.microsoft.com/windows95/> and click on the Free Software, Product Updates button.

The latest version of Windows 95 that comes pre-installed on new computers includes a few new features. As you've already noticed, it now comes with version 3.0 of Internet Explorer, and some of the 3D screensavers from Windows NT are included. Another change is that the dial-up scripting facility for dial-up networking is now easily available by bringing up the Properties window for each connection icon. This, too, is more like Windows NT.

Other additions include the ability to change display colour depth without rebooting and the inclusion of an updated file system. Is this a preview of Windows 97? Probably not. The next release may come this year, but is more likely to appear in 1998, and when it does it will probably look very different to Windows 95.

GETTING IT ON THE NET

Now that I have my Internet connection up and running I am keen to use it to download useful software for my PC. Can you give me any suggestions as to where to start? I'm interested in Windows 95 add-ons and such like.

L Peters, Warwick

One of the best places to start is <http://www.shareware.com/>. This site is essentially an index to shareware and public domain software held in the Internet's many

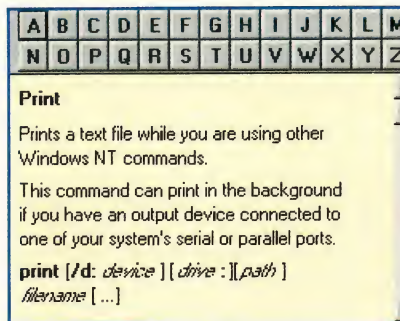
FTP sites and other archives. You can search for a program by entering its name or keywords that might describe it. Other places to try include <http://www.yahoo.com/>, which has lists of software archives on the Net, and <http://src.doc.ic.ac.uk/>, which is one of the biggest software archives in the UK.

PRINTING POSTSCRIPT IN NT

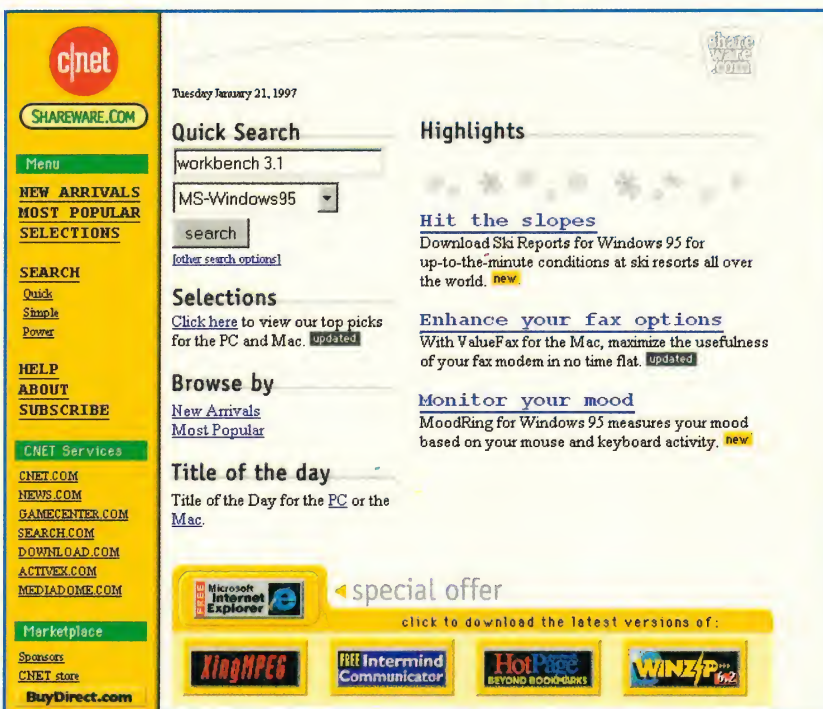
Many of the documents I download from the Internet seem to be in PostScript format. What's the easiest way to print a PostScript document from the Windows NT command line, assuming I have a PostScript printer available? Brian Wilson, Loughborough

DOS has had a PRINT command since the early days, and it can still be found lurking around. The PRINT command in NT is for sending text files to either a local printer or a shared printer on the network. Since PostScript files are just plain text files, the PRINT command should do the job. Use the /D option to specify the local or network printer you want to use.

NT supports another form of network printing, using the LPR command. This is for printing text files on printers connected to computers running an LPD server. These will generally be running some form of UNIX, but these days some network printers can act as LPD servers without being attached to a computer. The -s option to the LPR command lets you specify the name of the LPD server, and the -P option indicates the name of the printer. See NT's online help for details. (PD)



The PRINT command in MS-DOS and Windows NT will help you print PostScript files to your printer.



A good starting point on the World Web if you're after new programs is www.shareware.com.

MIND YOUR MIME

As you browse the Internet, you're likely to come across MIME types. MIME, (Multipurpose Internet Mail Extensions) is a way of telling programs what type of data is contained in a file. For example, a GIF image file will have a MIME type of image/gif. The first part indicates that the file is a picture, the second part says that the picture is in GIF format. A QuickTime movie might have a MIME type of movie/quicktime, and a Web page's MIME type is text/html.

So what are MIME types for? Originally they were for extending the capabilities of email. Messages sent via email can only contain text characters, but MIME allows

messages to be made up of several parts, each part being tagged with its MIME type, so you can send an email message with any kind of data attached, such as a picture or a video. Your email software looks at each part of the message and decodes it appropriately.

MIME also plays a part in the World Wide Web. Every chunk of data you download is tagged with a MIME type. Your web browser uses these types to decide how to display the data. If it can't display the data itself, it will launch a 'helper application' or a 'plug-in' which can handle the particular MIME type involved. Look in the General Preferences section of Navigator, and you'll see a tab

labelled Helper Applications. This has a list of MIME types and shows whether Navigator can display them itself, or if it needs to launch a helper application. Sometimes the program will ask you for help if it can't find a helper application. Try looking at the Web sites http://home.netscape.com/assist/helper_apps/ for helper applications and http://home.netscape.com/comprod/products/navigator/version_2.0/plugin/index.html for some plug-ins.



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AlfaTwin

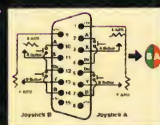
The ONLY automatic joystick selector you'll ever need

PC FORMAT
GOLD

PC FORMAT MAGAZINE
SEPTEMBER 1996 ISSUE

"One of the most annoying problems of PC gaming has finally been solved!"
PC Player 7/96

Patent Pending



Although most PCs have only one game port the design actually supports two joysticks (A & B). Advanced sticks that sport four buttons, throttle and rudder controls or coolie caps, make use of the second joystick (B) controls. When two sticks are connected only two fire buttons per stick are available.



In two player mode, both joysticks can be activated at the same time for two-player games. However, due to the design of the IBM joystick port, the advanced functions of the joysticks are not supported.



Select single player mode and the AlfaTwin allows you to switch between two joysticks. In this mode, all the functions of the stick are supported. To select your stick, simply press the fire button of the controller you wish to use.



You can cascade up to three AlfaTwin together. This allows four different joysticks to be connected simultaneously. Moreover, the six foot long cable brings the AlfaTwin round to the front of your desk, freeing you from the hassle of plugging/unplugging your joystick from the back of the computer.



AlfaCommander Pro



AlfaPilot Plus

Leading joystick manufacturer says:

"Just to let you know that the AlfaTwin joystick-switch arrived intact. At this moment I have connected 7 (11) joysticks to the AlfaTwin -:) and it works perfectly."

Computer --- AlfaTwin --- Gravis Phoenix
Gravis GrIP
Gravis GamePods

"This all works without having to pull out all the cables, simply wonderful! I cannot say anything else except congratulations with a very nice product."
Edu Oskam, Technical Support Specialist (Gravis Europe/TheNetherlands)



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How to...

MAKE YOUR OWN MULTIMEDIA



LIVE AND KICKING

Want to know more? Then catch 37 live at their next gig on 4 April. They're playing the Emergenza festival at London's Highbury Garage and you can get more details by calling 0181 963 0940.

Here's the first installment of our three-part tutorial teaching you how the indie band 37 produced an interactive single of their song, *Into the Sun*. They rock – we think you'll agree.

Multimedia musical experiences are all the rage these days, and as you probably already know, artists as diverse as Everything But the Girl, the Cranberries, Vanessa-Mae, Sting and Zion Train have turned to multimedia to give their music an interactive dimension. So PC REVIEW decided the most exciting and interesting way to demonstrate how multimedia is made would be to produce a multimedia single for an up-and-coming local band. Over the next three issues, you'll witness the creation of *Into the Sun*, the interactive single by the Bath-based band, 37.

Before you can actually make a multimedia program, you need some authoring software. Luckily, pride of place on

CD REVIEW this issue is given over to *Medi8or 3.0 Entrée*, a complete multimedia authoring package, capable of producing works of a professional standard. We think you'll find it's just the thing. And, not only will we be supplying you with the software with which to follow this tutorial over the next three parts, but we'll also be giving you all the photos, graphics, text, sounds and even video footage that you'll need to complete your multimedia creation.

Introducing the band

You may not have heard of 37 yet. Over the last year they've been building up a strong live following and are poised to take the music biz by

storm. They've gigged at all the right local venues, including a few support slots at Bath's celebrated Moles Club, previously host to chart-toppers Oasis and Blur. When you hear the name 37 in the future, just remember, you heard about them here in PC REVIEW first!

With the very capable hands of Joe Bennett, from our sister magazine *Total Guitar*, at the mixing desk, we coaxed the boys into the studio to record a track especially for PC REVIEW. Click on the file SUN.WAV in the 37 directory on the disc to hear what they came up with. But wait a minute, we're getting ahead of ourselves

here. You'll be adding the song to your interactive single in part two, for now we're going to start with the basics.

...and the tools

So, just what is *Medi8or*? Well, it works like a book. You begin designing each page and its associated objects, then link the pages together using Hot Spots. Once complete, your multimedia document can either be displayed directly from *Medi8or*, or via a runtime version which makes the document accessible outside the authoring software.

BEFORE YOU START

For the tutorial we recommend you set your Desktop screen size to 800x600. All you need to do now is follow the steps on the opposite page to create the first part of your interactive single. As you'll discover, *Medi8or* is very easy to use, but also extremely powerful.



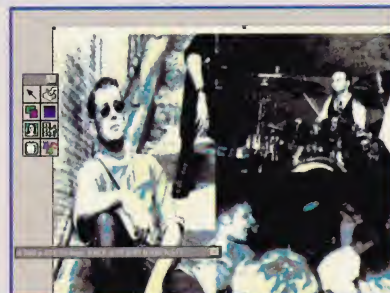
Get started with your own interactive single



1 Your first step is to install *Medi8or*. Load up the CD REVIEW menu (run the file REVIEW.EXE in the root directory or, if you've got Windows95, just put the CD in the drive and it'll start automatically). Go into The Works and click the Install button on the *Medi8or* page. Once *Medi8or* is installed, quit from our menu and select *Medi8or* from the *Medi8or 3.0 Entrée* program group that you'll see.

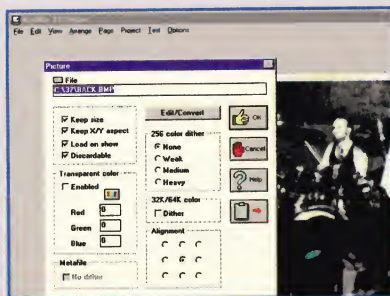


2 The first things you'll see when running *Medi8or* are a grey screen, the Toolbox and the InfoBox. The InfoBox, as the name suggests, is a small box in which you receive information about your actions. For example, if your mouse cursor points to an icon, the function of this icon will be displayed in the InfoBox. The InfoBox can be placed anywhere, using the mouse. The Toolbox is used to add multimedia elements to your document.



3 Now you need to load in a background image. From the Toolbox, select the picture icon (the Mona Lisa). Next, make a picture box with the following co-ordinates: x92, y83, b820, h617. You can adjust the size of the picture box by dragging its edges with the mouse. The current co-ordinates appear in the InfoBox. When you're happy with the size, double-click on the new picture. A dialogue box will open. Click on File and highlight the file D:\37\back.bmp (where D:\ is the drive letter of your CD-ROM drive) from the file selection menu. Click OK to select it. You'll be returned to the Picture dialogue box. Make sure the Keep in Size box is ticked and the alignment is Central, then click OK.

4 The Picture dialogue box has various properties which affect the way the picture is displayed. One great



feature of *Medi8or* is its ability to adjust the size of graphics to fit into a picture box. Next we'll be adding an image which is scaleable, to show you precisely how useful that function can be.

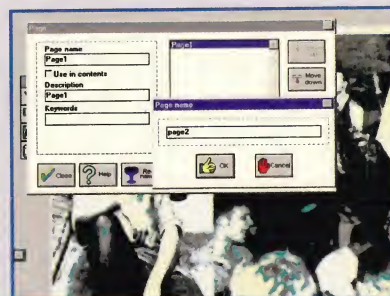


5 Make another picture box over the top half of the background. There's no need to be quite as precise with the co-ordinates this time. Double-click the picture to make its dialogue box appear. Then click File and select the file D:\37\logo.bmp. This time make sure the Keep Size box is not ticked before closing the Picture dialogue box. Click OK to return to Development mode. You'll see the band logo has appeared on your screen, over the backdrop. You can resize the logo by using the mouse. If you had Keep X/Y Aspect ticked in the Picture dialogue box then the logo will be resized with the same X/Y ratio, so it will always look 'in proportion'. If you didn't have it ticked then you can stretch the logo in various ways. Try experimenting with both options.

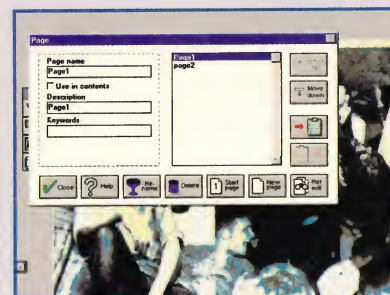


6 To make the logo look more professional we are going to make it transparent. Double-click on the logo and tick the Enabled box in the Transparent Colour section, then click on the multi-coloured box. A new dialogue box will appear, showing you the logo and prompting you to enter the transparent colour. Click on a yellow part of the picture, then click OK. As you'll see, every part of the

image that was yellow has now changed to become transparent.



7 The introduction screen is almost complete now, and it's looking pretty good. To finish it off we're going to add a button to take you to the next screen. The first step is to define a new page. Choose Select Page from the Page menu and then Click on New Page from the dialogue box. Type in Page 2 when asked for the name of the page. All you need to do then is click the Close button to add the page.



8 You'll be looking at page two now (which is currently blank and boring), so get back to page one by using the Page menu. Click on Select Page, then double-click on Page 1.

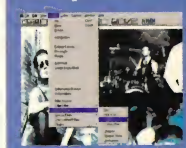


9 Choose the Button icon from the Toolbox and create a small button at the bottom of the screen. Double-click on the new button and you'll be prompted to enter text. Type in Click here to start.

10 Right-click on the button and select Events from the pop-up menu. On the Events Box drag the event Mouse Click into the work area and the action Turn Page next to it. Next, define which page to go to. Click on the downward arrow under Turn Page and select Page 2. And that's it! You've added some pictures, and created a button to jump to the page that you'll need next time. (GB)

HOW WOULD WE LIVE WITHOUT IT?

All the graphic effects on the backdrop used in this tutorial were created using the standard filters available in Paint Shop Pro. Load in an image, increase the colour depth to 16.7 million colours and then add a filter such as Blur or Soften. You'll find Paint Shop Pro in the Essentials section of our CD REVIEW menu. Install it and have a play around to see what you can come up with.



AND HERE'S ONE WE MADE EARLIER...

If you want to cheat and see what you should have created by following the steps on this page, then open the SUN.MD8 file and have a look. You'll learn more by doing it yourself though.

THE STORY SO FAR

In *Medi8or*, screens under development look different to the way they look when compiled. To take a look at how your document is looking so far you can press [F5]. This runs the whole document. If you wanted to just run a single page then press [F6]. Pressing [Esc] returns you to the development mode.

NEXT ISSUE

We'll show you the Events menu and add some flashy effects and sounds.

CD REVIEW

On the disc is a working version of *Medi8or*, some clip art from Matchware and the files you'll need to complete this tutorial.

How to...

PLAY HEAD TO HEAD GAMES

For the ultimate challenge why not join the multi-player revolution and go head to head against a friend?

Setting up two PCs for a head-to-head confrontation...

1 Before attempting to move your PC or connect anything to it, it is a very good idea if you turn it off. Then your priority will be to situate both PCs in the same room, preferably on the same table, as null modem cables are not always known for their length. If possible, try to set the screens up so they face away from one another, as watching your opponent's screen tends to remove the element of surprise, and it's much more fun to see his or her face when you annihilate them with a blistering rocket attack.

2 Once the PCs are set up securely, it's time to connect them. Watch out for wobbly tables which could drop your precious PC onto the floor during a

particularly frantic avoidance manoeuvre. The null modem cable plugs into one of the serial ports on each PC, enabling them to talk to each other. Most PCs have two serial ports, cunningly known as COM 1 and COM 2, and these live on the back of the PC.

3 Locate your COM ports. COM 1 is usually a 9-pin, D-shaped connector, and will probably be host to your mouse (unless you have a PS2 mouse) and will hopefully be marked COM 1, SERIAL 1, or I/O 1. COM 2 is usually a larger 25-pin socket, but depending on your make of PC, could also be the same type as COM 1 and again should be marked COM 2 etc. The type of COM port you use

does not matter as a decent null modem cable will have both 25- and 9-pin connectors at either end, but if it doesn't the chances are you have an ordinary serial connector and not a null modem cable, which will NOT work. As when connecting anything to your PC, make sure it is turned off before plugging the cables in.

4 Once the cables are plugged in, and the screws done up, it's time to power up the PCs and load the games. With most multiplayer games, one person has to initiate the connection so it's time to decide who will be the 'server' or player one, and who will be the 'client' or player two. Both players need to go to the relevant game menu and choose



THE BEST OF HEAD



Weapons of destruction abound in this 3D fragfest, with a huge number of customisable options and add on patches to enrich the deathmatch experience.



So you had the original sussed, and then you took on Red Alert. Can you predict what your human opponent will do next?



Although most games these days offer hours of gameplay, with hundreds of missions to complete and new enemies to destroy, even the best kinds of artificial intelligence can become predictable after a while. Every time you replay a level the number of enemies and their behaviour patterns remain the same. So for a real adrenaline trip, try

playing the most unpredictable opponent of all: your fellow man (or woman). After all, more and more games these days are being designed with human conflict in mind.

You've probably heard a lot about multiplayer gaming over the Internet and via office networks. These are costly and complex ways of doing it. After all, you need modems,

service providers, ethernet cards and all that malarkey if you go down that road. The simplest and cheapest way to play is by a direct connection, or null modem.

All you need to start is a couple of PCs, a friend or relative of your choice, two copies of the same game and a null modem cable. Here's how to set it all up...

NULL MODEM

As the name suggests, null modem is much like connecting two PCs together with a standard modem, but without the hassle of having to book the household telephone line in advance or investing in a plastic box with flashing lights that shrieks at you while running up nasty, expensive phone bills.



A null modem cable, yesterday. It costs £15.99 and can be obtained from Tandy.

multiplayer and then select the direct connection or null modem option. In this menu each player needs to configure the game according to which COM port the cable is attached to their own PC. Select the relevant port, for example COM 2, and make sure the correct IRQ is selected, in this case IRQ 3.

5 If you don't know which IRQ your COM port is on the simplest way to find out is to type MSD at the DOS prompt and select the IRQ option. By default COM 1 should be on IRQ 4 and COM 2 on IRQ 3. The baud rate may also be required and it is best to use the highest value available – usually 57600. The higher the baud rate the better for

smooth gameplay. Both players should select the same value.

6 Now that all the technical stuff has been dealt with it's time to choose a level, episode or campaign. The player who has been designated as the server chooses the level, difficulty and any other in-game options applicable, then starts the game. The other player then joins the game and should see a message to the effect of 'connection made', 'server found' or something similar.

7 If you receive a message along the lines of 'connection failed', 'server not found' or other initialisation failure messages then something is not quite

right. First check that both players have selected the correct COM port and IRQ settings. If you aren't sure and want to alter them only change one value at a time before retrying. If altering these settings has no effect then check that the null modem cable is not loose, or try a different COM port.

8 Direct connection is simple to set up and doesn't require any drivers to be loaded, so connecting should be a breeze. Computers, however, are nefarious beasts and sometimes a quick power off and power on again will sort out a sulky PC. Remember, if all else fails, read the game's documentation carefully – you may have missed an important point.

TO HEAD GAMES



A sort of medieval Command & Conquer that sets you to work hacking, slashing and managing those resources.



We've played this cliché-ridden swords and sorcery graphical RPG and find its head-to-head mode is simply magical.



Head-to-head gaming is the perfect way to find out if your friend's boasts about being better than Schumacher are true or not.



BLOWING AWAY THE COMPETITION



G-NOME

G-NOME pushes real-time 3-D simulation over the edge. Experience the terror of being chased on foot by a four-storey HAWC. Feel the adrenaline rush as you turn and face the armoured giant.

MULTI-PLAYER, MODEM, NETWORK & INTERNET READY!

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Reach us on CompuServe (GO SEVENTH), AOL or MSN
(keyword: SEVENTH) or the web (www.7thlevel.com)

7th LEVEL®

SETTING THE STANDARDS



	G-NOME	MERCENARIES	EARTHSEIGE 2
GRAPHIC RESOLUTION	SUPERIOR	OK	OK
PATROL ON FOOT	✓	✗	✗
ENTER BUILDINGS & GUARD TOWERS	✓	✗	✗
CHANGE HAWK'S DURING A MISSION	✓	✗	✗
EJECT ENEMY PLAYERS FROM THEIR HAWK	✓	✗	✗
CROSS-TALK WITH YOUR WINGMAN	✓	✗	✗
MISSILE-CAM	✓	✗	✗
USER GUIDED MISSILE	✓	✗	✗
REAL-TIME DAMAGE DISPLAY	✓	✗	✗
VEHICLES DISPLAY MULTIPLE LEVELS OF DAMAGE, RIGHT DOWN TO THE LAST BODY PART	✓	✗	✗
MULTI-PLAYER READY	✓	✓	✗
PANNING STEREO SOUND	✓	✗	✗

G-NOME



MDK

MURDER • DEATH • KILL

**THE MOST REVOLUTIONARY
3D GAME EVER**

**Definitive review of
this killer game!**

**Plus an exclusive
interview with its creators,
Shiny Entertainment.**

ON-LINE GAMING

WE TELL YOU...

**What kit you need
How much it costs
Where you should go
What you will play**

PC GAMER

March issue on sale 26th February

CD REVIEW

ATLANTIS: THE LOST TALES

The demo also gives you a sneak preview of some of the other locations in Atlantis, such as, umm, Atlantis.

Your first chance to play Cryo's stunning new 3D adventure.

Read our in-depth look at Cryo Interactive and its upcoming games? (It starts on page 18.) Drooled over the glorious screenshots of *Atlantis*? Don't bother wiping yourself down. Instead, drool over it some more. Because we've conspired with those clever French folk at Cryo to bring you an exclusive playable demo.

Run the demo from the CD REVIEW

menu and you'll find yourself in a global 3D gallery. Here you get a sneak preview of scenes from the final game. Click on a picture and you're transported to the location, where you can cast your eyes about with the mouse. You'll notice that one gallery image – the forest – is substantially bigger than the others. This is Carbenok, an ancient medieval forest in England. Unlike

the other locations, you can wander around Carbenok, exploring its winding mossy ways.

Modelled loosely on Stonehenge and its surroundings, you'll discover that Carbenok is a dark place of ancient power. To visit Carbenok, click on the large image of the forest in the gallery. You'll find yourself outside the lair of an old hag. Look around your surroundings by moving the mouse. A flashing gold arrow will appear and disappear as you do so. This indicates either a path you can follow or an object or person you can interact with.

Simply click the on the right mouse button to follow the arrow.

The old woman who owns this desirable leafy residence has apparently just saved your life. If you decide to enter, she'll harangue you about some eggs she's lost. Notice the OMNI-Synch engine at work as it matches her mouth movements to her wordy ramblings.

You'll discover that the old women's egg fixation isn't completely insane – it's a puzzle for you to solve. We'll leave it to you to figure it out. Note that you can just turn around, leave the cave and explore the forest. Point and click to follow the paths. Eventually you'll reach the limits of the demo. Such is the price of a free lunch. **(OB)**

Direct X

To run the *Atlantis* demo you'll need to first have Direct X installed. If you try to run *Atlantis* without it, you'll get an 'Out of Memory' message. You can install Direct X from our Essentials selection, from the CD REVIEW menu.



The OMNI-3D technology brings awesome graphics to the PC.

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From: Cryo Interactive Entertainment ● ☎ 00 33 1 44652565
● Minimum system: Pentium 75, 16Mb RAM, Windows 95

Getting started

Winter is here. The roads are covered in ice. Windows are coated in condensation and the ice floes are sweeping across the Arctic. To match the season, our CD REVIEW interface also features some wintry ice, but you can be sure it's not frigid. In fact, we think it's hot.

Featuring two separate menus for Windows and DOS, it aims to be all things to all PC users. Before you run our menu, it's a good idea to quit from any other programs that are already running. Here's how to get the menu you want up and running:

Windows users

If you're using Windows 95 then pop the CD in the drive, wait a few seconds and the Windows 95 menu autoruns. This feature is



It's freezing! Thank the heavens for our Winter menu.

not supported on all machines, so if nothing happens click on Start, then select Run. Use the Browse option to locate the file REVIEW.EXE, and you're into the action.

If you're running Windows 3.1, click on File, then Run, then use the browse option to select the file REVIEW.EXE. Double click the file name to start the menu.

Our Windows menu is split into five sections, the contents of which are described in more detail on the following pages. To get to a section, click on its icon on the main screen and use the arrow keys to get to demos.

You'll notice that we've also included the Troubleshooters guide on the front end. Should help you sort any problems out.

DOS Menu

Even in these enlightened times, many games require DOS to run, so you'll find most of this month's in our DOS menu. Type PCR or GO at the DOS prompt of your CD-ROM drive. Once the DOS menu is up and running use the arrow icons to scroll through our demo selection.

THE INCREDIBLE HULK: THE PANTHEON SAGA

Marvel Comics' green behemoth bursts onto your PC with a bang. In our exclusive demo, you can walk around smashing boxes, punching nasty beasts and generally behave like a young green tearaway.

Control the Hulk with the cursor keys. Being Incredible, the Hulk can do much more than just stroll about like a purple trousered cucumber. Press [S] to jump, [Z] to punch, [X] to crouch and [C] to kick out with your mighty thighs.

One of the best manoeuvres is to run (hold down the cursor key in the direction you wish to run) then kick, causing the Incredible Hulk to power slide. Finally, if you press punch near an object you pick it



up. Press punch again to throw it.

You begin on the ramparts of a castle, locked in on both sides by gates. You could smash the gates down, but why feed further anti-Hulk stereotyping? Instead, press the buttons – the outsized bricks – to open them.

Punch and smash anyone who gets in your way, and be sure to eat the sizzling power ups. Eventually you'll come across a rival super hero, who we haven't managed to kill yet.

To quit, press [Shift] + [Esc].

The full game lets you direct the Hulk through 14 action-packed missions, with plots taken directly from the pages of Marvel's best selling *Incredible Hulk* comic book. It's the perfect way to satiate the green monster inside all of us.

People called the Hulk 'greenie' at school. Then he grew eight foot tall and sat on them. They shut up after that.

FUNCTION KEYS

The following keys will make your Hulk even more incredible

- F5 - 320 x 200 mode (lo res for speed)
- F6 - 320 x 240 mode (default)
- F7 - 640 x 480 mode (faster machines)

- F8 - Alter brightness (in game only)
- F9 - Reduce screen size in 640 x 480 mode
- F10 - Increase screen size in 640 x 480 mode
- F1 - Pause

Publisher: EIDOS Interactive ☎ 01225 446 019 • Minimum System: 486DX2/66, 8Mb RAM, 2Mb hard disc

KKND

Command & Conquer meets *Mad Max* in this crazy one-level demo from Down Under. Select units with the mouse, then point and click to tell them where to go. In *KKND*, oil is the primary resource. You'll need it to fuel new structures that will enable you to get the equipment necessary to squash the opposing gang of uglies. For complete instructions, read the text file in the CD REVIEW menu. You'll find our review on page 49.

If you have problems running *KKND* after installing it, quit CD REVIEW and run *KKND.EXE* from Explorer.



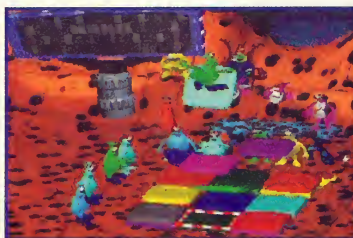
KKND lets you command units, destroy buildings and ride beasts.

From: EA ☎ 01753 549442
Min system: P75, 16Mb, 27Mb hard disc

FLIP OUT

Don't worry, *Flip Out* isn't as difficult as it looks. You must match the many coloured pieces with the many coloured squares. When everything matches, you've won. The key point is that you have to keep at least one piece in the air at all times. If all the pieces hit the floor its game over. When your last piece is nearing the floor press [Ctrl] again to flip it up again. The demo has the first and last level from the Cheese Planet game.

To find out what we think of *Flip Out*, just flip the pages of this month's magazine until you reach page 59.



find out what happens when you take a hammer to a Rubix cube.

From: Gametek ☎ 01753 553445
Minimum system: 486/66Mhz, 8Mb RAM

MDK

It's not in the shops yet, but we're giving you a chance to play it now. Read our glowing *MDK* review on page 41, then try out this fully playable demo. You'll find a full control listing inside the CD sleeve. You begin in a tunnel. Run to the end, shoot everything then open the door with the nuclear bomb. After a while you'll come to a glass screen blocking your way. You need to step back from this and shoot the robots holding targets with your sniper rifle. A grenade will drop down by parachute. Destroy the glass and progress.



You'll only get the best out of *MDK* on a truly fast Pentium PC.

From: Interplay ☎ 01628 423666
Min system: P90, 16 Mb, SVGA video card

BLADE WARRIOR

Proving that Luke Skywalker isn't the only hero to wield a lightsabre, *Blade Warrior* gives you the chance to dispatch enemies with the famous weapon. You play Hero Sou, who also gets power-ups to defeat foes attacking from both the air and the ground.

Make Hero slash, walk, run, crouch and jump through each level, of which the first is included on our coverdisc. So get your lightsabre out and chop your enemies into premium quality minced beef while ignoring the voices in your head from some old English actor. The final aim of this Korean game is to destroy the sinister big boss.



"Use the force Luke." "Stop talking in my head old man, and I'm not Luke!"

From: Phantagram UK ☎ 0181 324 1372
Min System: 486 DX2, 8Mb, Win 95

PINBALL 97

Beer-stained machines in darkened corners of forbidding pubs gave the game something of an image problem. But in the 1990s, PCs gave gamers the complete pinball experience without the danger of being forced off the tables by drunken Neanderthals.

Now there's *Pinball 97*, offering an even bigger table view in full-screen 3D. Our demo offers the chance to manufacture monsters in a mad scientist's lab. Buy the full version and you can also play two new bonus-scoring tables on which you can land spacecraft and collar criminals. It boasts new sound effects, multiball play and table nudging to provide the ultimate pinball experience.



Flip your fingers with our demo of *Pinball 97*, set in a mad scientist's lab..

From: Maxis ☎ 0171 5051500
Min System: 486, 8Mb, Win 3.1/95

FLYING CORPS

Flying *Corps* is a fantastic World War 1 aircraft simulation. Our demo is a DOS version of the game, but if your PC can manage, *Flying Corps* will run in Windows 95.

The demo takes a mission from the game, called Squadron Encounter. Three flights of four aircraft go up against the same number of the enemy in a head-to-head game of chicken. Choose your crate, either the Albatross or the Sopwith Camel and aim to see off the enemy with a rat-tat-tat. Read our review on page 46 and Chocks away!

Although the game runs on a P100, a P133 is the minimum system we'd recommend to play *Flying Corps* with.



In 1914, all you needed for your own air force was balsa wood and a lawnmower.

From: Empire Interactive ☎ 0181-343 7337
Min System: P100, 16Mb, 31Mb hard disc

SIM GOLF

With our demo of *Sim Golf* you can sample two holes each at Rancho La Quinta and The Prince Course. In the full version you can modify courses, or make them up from scratch. Load up the Course Architect from the first screen to sample this powerful golf course design tool. To learn how to use the mouse swing, or any other aspect of golfing hit the [?] button. This conveniently calls up the help documentation.

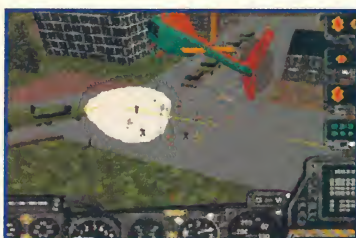


The full version has a golf editor so you can create your own cities (maybe not).

Publisher: Maxis ☎ 0171 505 1500
Min System: 486 DX2/66, Win 95, 12Mb

SIM COPTER

Soaring over one of your very own *SimCity 2000* creations is anything but a pleasure flight in *Sim Copter*. You play a chopper pilot whose job is to fight fires, rescue shipwrecked Sims (the little inhabitants of *SimCity*) and try to untangle traffic jams. The cities are rendered in realistic 3D, and you'll get a better helicopter on completing missions. A copy of *SimCity 2000* is not required, but one thing you will need are nerves of steel.



Now you can try crowd control without joining the airborne police.

From: Maxis ☎ 0171 505 1500
Min System: 486 DX2, 8Mb, Win 95

FX FIGHTER TURBO

Being the best fighter in the universe just got tougher with the release of *FX Fighter Turbo*. Rygil returns for more action in the new, enhanced game in which you challenge all-comers in a fight for survival. Fighters Jake and Kwondo are featured in the demo. The full game has modem-to-modem and network modes to enable players from all over the galaxy to fight for the championship, including two new vicious aliens.



Practice your kung fu kicking against Jake and Kwondo in this demo.

From: GTE ☎ 0171 911 3030
Min System: P60, 8Mb, Win 95

THE QUAKE COLLECTION

Another month, another fragfest. If you're a single player, check out the Circus patch. This replaces many of the *Quake* monsters with new, ridiculous versions. They fight in the same way but they look much funnier. Falldeth adds a new lethal dimension to big drops – fall too far and you gib into a thousand tiny pieces. Better weapons come via Fireball, which gives you – a water pistol! Okay, okay, it really gives you the fireballs that Cthon fires in the first episode. Much nastier though.

We've also got a great selection of single and multi-player levels. Kyshell is a lovely single-player level, full of traps and surprises that constantly keep you in your toes. For deathmatch-*Quake*-meets-neon-Tron, you should unzip *Ethereal*.

Remember, these patches can only be used with the registered version of the game, not the shareware version. You'll need to have some familiarity with copying files, creating directories and other Windows operations in order to use them.

Before you can use a patch, you'll need to unzip it with Winzip. You'll find this in the Essentials collection on the coverdisc.

All the patches and levels include text files, which you should read before attempting to use the patch. All the patches work in slightly different ways, but we've tried to include only the simplest.

Generally, to use a 'prog' patch – that give you new weapons and opponents – you first create a new directory in the *Quake* folder. Then, copy the patch into the directory and unzip it with Winzip. Finally, launch the game by typing `quake -game xxx`, where xxx is the name of the new directory.

To use a new level, create a folder called Maps in the Id directory, which is in the *Quake* folder. Unzip the new level into Maps and then run *Quake*. To access the new level, go to the *Quake* console and type `Map xxx`, where xxx is the name of the new level.

Finally, we remind you yet again to look at the help files. Remember, none of these patches are commercial products!

From: Various authors
Min system: 486, 8Mb, *Quake* (full version)

THE WORKS

MEDI8OR 3.0 ENTRÉE

Making your own multimedia is now easier than ever, thanks to the special edition of *Media8or 3.0 Entrée*, which is exclusive to the coverdisc.

With *Media8or* you can combine pictures, sound, text, video and graphics into all-singing, all-dancing interactive applications. They'll either run directly from within the program itself, or you can create a runtime version for PCs that don't have *Media8or* installed on them.

The package is user-friendly and easy to use because you simply combine the all the media elements into pages, just like a book. Then you build up jump references, which tell the software when to flick to a different page. In this way it's possible to use *Media8or* to create product catalogues, teaching aids, information systems, or even multimedia music singles.

To get you started with *Media8or*, we've put together a three-part multimedia tutorial,

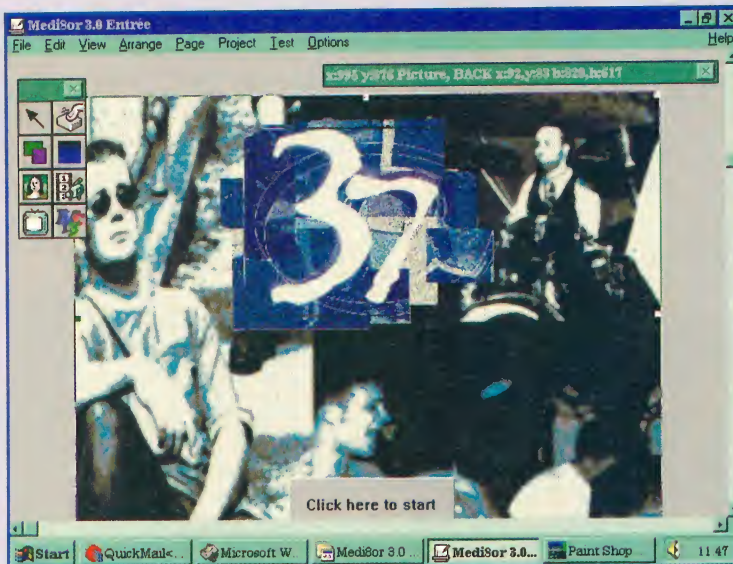
which starts this month on page 110 and continues for the next two issues, in which you can play pop producer and design an interactive multimedia music single for Bath-based rock band 37.

All the elements you need to create your own masterpiece and storm the pop charts are in the MULTIM\37 directory on the disc.

Our coverdisc version of *Media8or* also comes complete with extra clip art, which will come in handy when you're ready to create multimedia for yourself. You'll find it in the MULTIM\MEDI8OR\CLIPART directory.

The goodies for readers of PC REVIEW don't end there. We've teamed up with MatchWare to offer you the chance to upgrade from *Media8or Entrée* to *Media8or Professional* for only £150, a saving of £25 on the regular price.

Complete details of this special offer and an order form are contained in the file MWORDER.TXT which is found in the MULTIM\MEDI8OR directory. It's an upgrade that's well worth considering. (GS)



With *Media8or 3.0 Entrée* you can create all kinds of multimedia. Here Bath boys 37 strut their stuff in part one of our tutorial.

From: MatchWare Ltd ☎ 0181 940 9700

Minimum System: 386, Win 3.1, VGA display driver, true-type fonts.

Language Labs French

One of the best uses of multimedia is to teach yourself a foreign language. This is an interactive demo of *Rosetta Language Labs*. The two chapters included in cover French. The often tedious process of learning is made easier because the program reads words aloud and asks you to identify which picture (from the selection given) corresponds to the word spoken. It'll also help you perfect your Gallic accent.

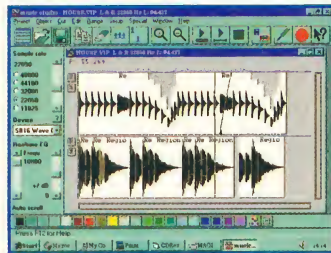


Learn French the easy way with *Rosetta Language Labs*.

From: Eurompress ☎ 01625 859 333
Min system: 486, 4Mb, Win 3.1/95

Magix Music Studio

Turn your PC into a recording and editing suite with *Magix Music Studio*, which enables you to create, edit, and loop samples of sound. You can then play them over a synthesiser, sound-card, or sequencer, and use the cross-fade function to smooth the transition from one loop to the next. You can also add reverb and echo effects, and combine drum loops samples from CDs, and sounds from your own recordings, on up to four tracks.

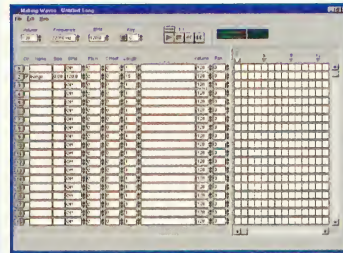


Editing is easy with *Magix Music Studio*, with an intuitive use of markers.

From: Magix Software ☎ 0189 743 580
Min System: 486, 8Mb, Win 3.1/95

Making Waves

This month we've a treat for those who've always fancied being in the Utah Saints – our demo of *Making Waves* and a 16-bit sound card will transform your PC into a music studio capable of creating professional-sounding songs from sampled sounds. The software forms melodic and rhythmic loops from samples of drums, pianos, or other instruments. Sample WAV files are included, but you can't save tracks with the demo.



Make your own top ten single with *Making Waves*. Come on pop-pickers!

From: Perceptive Solutions ☎ 01773 821 120
Min System: 386, 4Mb, 16bit Sound Card

CompuServe

There's never been a better time to get on-line. By joining CompuServe you'll get one month's free membership, together with 10 hours free access time. First you need to install CompuServe's WinCIM 3.0.1 software, which comes complete with Microsoft Internet Explorer for browsing the World Wide Web. As well as Internet access, CompuServe also provides services exclusively to its members, such as Forums on specific topics, and chat rooms where you can talk live to fellow users.



CompuServe's WinCIM software is easy to install and use.

From: CompuServe ☎ 0800 000 200
Min System: 486, 8Mb, 9600bps modem.



TRICKY FINGERS

For those who love being in control, The Gravis GamePad Pro is a godsend, as 20 lucky PC REVIEW readers will soon discover.

For more information on the Gravis GamePad, contact THE Games on 01703 653 377. Gravis Web page: <http://www.gravis.com>

The 10 buttons, including four flippers, are programmable for control and firepower.



THE RULES

1. Answers please on a postcard or envelope addressed to: Gravis Con., PC REVIEW, Future Publishing, 30 Monmouth Street, Bath, BA1 2DL. Or, emailed to pcreview@futurenet.co.uk.
2. Don't forget to put your name and address on the entry. Make sure you get it to us before 1 April.
3. This competition is not open to employees of THE Games or Future Publishing.
4. No multiple entries.
5. No correspondence will be entered into. The judge's decision is final.
6. The winning entry and winner's name will be printed in the May issue of PC REVIEW, on sale 29 April 1997.

Thumb-controlled directional pad (detachable joystick handle included).

Ergonomically styled casing that fits in your hand. Takes after the Playstation joypad, doesn't it?

Fed up with fiddling with keyboard controls? Tired of taunts from smug Sony PlayStation owners? If so, you'll be delighted to know that such worries are now a thing of the past for PC gamers, thanks to the Gravis GamePad Pro.

Suitable for controlling any joystick, gamepad, or keyboard-compatible games, the Gravis sports a grand total of 10 buttons, including four flippers, and a thumb-operated directional pad. Or, if

you prefer, a screw-in joystick handle is provided.

With two GamePads, you can challenge friends in head-to-head contests using the built-in connector, or attach up to four GamePads if you buy a Gravis Multiport. Even better, the GamePad comes with Windows 95 software for assigning keyboard commands and cheat codes to its buttons. Just don't tell your gaming rivals!

TECHNICAL SPECIFICATION

- Compatible with every game that uses joystick, gamepad, or keyboard control.
- 10-button control for DOS games that support Gravis GriP and all Windows 95 DirectInput games.
- Built-in Y-cable. Compatible with Gravis MultiPort (available separately).
- Programmable for keyboard-controlled games.
- Digital interface for responsive control.
- Self-calibrating.

To Win a Gravis GamePad Pro

The Gravis GamePad Pro makes controlling your direction in games easy. We have 20 of these masterful peripherals to be won by readers who can answer this directorial question:

Who directed the movie The City of Lost Children? (Hint: you'll find the answer in this issue).

All you have to do is write your answer on a postcard, or include it in an email, and send it to the address given in the sidebar. Remember to write your name and address on your entry so that we can send you your prize if you win.

Now there's more than one reason to join Special Reserve
For discount prices see pages 44 to 47 or phone 01279 600204 before 8pm - For other reasons please see below

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Entries are best placed by March 27th

Special Reserve Fantasy Formula 1



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One for every Grand Prix - entries close on the Thursday before each race.

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New range

Buy any one item from our entire catalogue at the same time as joining (£7.50) or renewing (£7.00) for a year or more and we'll give you a choice of these fantastic gifts **PLUS** the Special Reserve Book of 1001 Cheats with every gift. **AND** members receive 10 issues of our 64-page club magazine per year, **AND** big discounts right across our huge product range.

ABSOLUTELY FREE
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Members may renew at any time to take advantage of these offers. However, we regret that memberships cannot be extended beyond two years into the future. Memberships which extend past two years will be cropped at April 1999.

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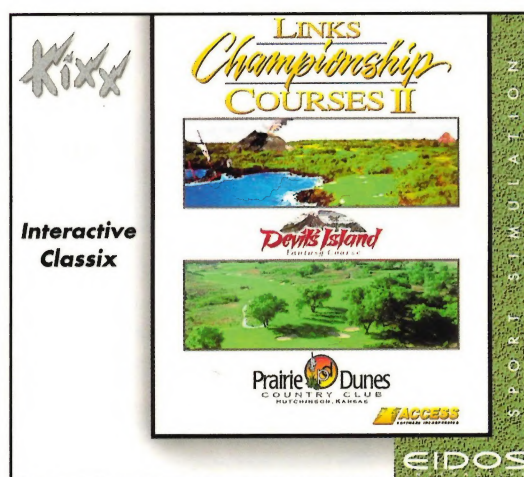
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